The Central Park.—No. 3.

IN former articles we have criticised the close planting of the trees, &c.; in the present we propose to say something about the manner and character of the grouping. We had been led to conclude, from the promises made at the initiation of the work, that we should now behold something very different from what meets the eye of the visitor. We were told by Mr. Olmsted that we should have an *American* park, something unique and imposing; instead of which we find copies of what we regard the worst features of European parks, as we find them described. By an American park was meant, of course, something grand and imposing, which we might have had, and may even still have. The expression, undoubtedly, related mainly to the character and disposition of the trees; for in no other respect would it be in the least degree apposite. It was no doubt supposed, and very justly, too, that our own grand forests and woodlands, in their composition and individuality, would present a copy worthy of being reproduced on a small scale. But do we find any thing like this in the Central Park? Not in the least. There is not the smallest indication that any thing of the kind has been, or will be attempted. On the contrary, the teachings of nature, in her grandest manifestations, have been ignored, and stiff and meaningless forms, devoid of expression, have been adopted in their stead. We regret that the actual condition of things at the Park should render such criticisms necessary, and we indulge the hope that such changes will hereafter be introduced as to disarm them.

But let us be a little more specific, in order that our objections may be better understood. In our examination of the Park, we find in all those portions approaching completion, and in others in the course of development, that one uniform plan of grouping has been adopted, and that plan consists in forming a group of one kind of tree only, the only exceptions consisting in the natural growth of the Park. We have a group of Scotch Firs, a group of Norway Spruce, a group of Hemlocks, a group of Paulownias, a group of Birch, a group of Silver Firs, a group of creeping Junipers, &c., reduplicated *ad infinitum;* yes, and even groups of Cephalotaxas, Taxus, &c., and these, from their relative positions, we should judge were expected to grow into as huge proportions as the Hemlocks; and we have no doubt they will! These groups of a kind, densely planted, are scattered here and there in such a way as to produce an effect not much unlike clumps of Vaccinium on a treeless hillside; or rather the impression is produced of numberless little plots, each with a separate ownership.

Now we do not object to an occasional group of trees of a kind; but, with this exception, we object *in toto* to the grouping in the Central Park, both trees and shrubs. It is dull and monotonous, and altogether wanting in beauty and effectiveness; besides, it may be used as an argument for want of knowledge and skill on the part of the person who directs it, which we should

be sorry to see; for it could be said, and probably will be said, that any ordinary gardener can group trees in this manner. In the way of *composition*, the highest development of Landscape Art, nothing whatever has been attempted; light and shade, the commingling and harmonizing of color, depth, breadth, massiveness, shelter, &c., have thus far been ignored, not, probably, so much from want of boldness and originality, as from a determination to reproduce some of the tamest features of European parks. Ruskin, in one of his most eccentric moods, attempts to show that a forest composed entirely of Scotch Fir would be a sublime sight; a huge, murky thunder cloud, surcharged with vials of wrath, and covering the whole face of the earth, would be still more so, but neither, we imagine, would be calculated to produce any very pleasurable emotions. If our friends at the Park would have some idea of our notions of tree grouping and composition, let them take the Albany steamer some fine morning, note a good many things they will see by the way, leave the boat at Rhinebeck, and visit the princely estate of the Hon. William Kelly; they will find the passage and the visit exceedingly suggestive. If they wish for a fine example of undergrowth and filling in, let them visit the fine country seat (now in course of completion) of Charles Butler, Esq., at Scarsdale. If they do not know these gentlemen, they can make use of our name, which will insure them a hospitable reception and every attention they can desire. We had forgotten one other matter. If they would know what a "thing of beauty" a lawn can be made, let them visit the beautiful residence of H. W. Sargent, Esq., at Fishkill, where they will also see a good many other things to interest them. These three visits would be worth a dozen visits to Europe.

We are more than ever desirous that the work at the Park, as a whole, and in all its details and materials, should be in harmony with the highest development of landscape art; and we wish to aid in this to the best of our ability; hence our suggestions. We are glad to perceive, that since we wrote our first article, there has been a manifest improvement in the tree planting, so far as close planting is concerned. Let this go on still further, introduce miscellaneous grouping, study out composition, &c., as hinted above, and we may yet have the Central Park the model we all desire. And so we close for the present.

SPRING HOT-BEDS.

BY A JERSEY MARKET GARDENER.

As the season is now coming around for our preparatory spring operations, a few remarks on our manner of constructing hot-beds might be of service to some of your readers who are only amateurs in such things, and who (keeping no regular gardener) are often sadly puzzled and befogged by the mystery that is too often attempted to be thrown around some of the most simple of gardening operations by some of our would-be "scientifics," whose "little knowledge" —*practically*—proves often, not only to themselves, but their unfortunate auditors, "a dangerous thing."

Our manner of preparing hot-beds being on a large scale, we necessarily employ the most economical means to get at the result desired.

In the materials for the hot-bed there is very little choice; there is nothing

better yet than stable manure, or stable manure and leaves from the woods, when we can get them, in equal proportions. As we never begin to use our hot-beds for seeds before the first week in March, it is quite soon enough to collect the materials for heating two or three weeks before; and as, at that time—the middle of February—the weather is often severe, it will much assist the fermentation of the materials if put in a shed or some place where they will be partially sheltered. This is worthy of attention, as I have often seen large quantities of the heating materials frozen stiff by a few days' exposure to a zero atmosphere.

When a sufficient quantity of the manure is procured for the purpose required, it is thrown in a heap and moderately firmed; the mass will have become heated throughout in from four to seven days, according to the state of the manure and the weather. It is then again turned to allow the escape of the "rank heat;" twice turning is usually necessary to reduce the violent heat, especially when only manure is used, the mixture of leaves greatly diminishing the gross heat of the manure. When thus mixed, one turning is sufficient. The pits wherein we form the hot-bed are from two and a half to three feet deep, six feet wide, and of any length that may be required. The manure is put in to the depth of from eighteen to twenty inches, and moderately and evenly firmed with the back of the fork. The sashes are then put on, and the sun allowed to shine on them, so as quickly to "draw up the heat," which will be in about twenty-four hours from the time of making up the hot-bed. We then, but not before, put on from four to six inches of rich, loamy soil, when the seeds of tomatoes, egg and pepper plants, cabbage, cauliflower, and lettuce may be sown at once.

If proper attention has been given to airing, watering, and covering up the sashes with mats at night, the cabbages, etc., will be ready for planting out in the open ground by about one month from the time of sowing. But the tomato, egg and pepper plants should, at about that time, be replanted in a slight hot-bed, prepared as before, of about ten or twelve inches in depth; or, by careful covering up with straw mats, they may be preserved in cold frames; but the hot-bed is the safest, if manure can be had. These tender plants, of course, are not safe to be planted out in our district before the middle of May.

On all our hot-beds we use straw mats or shutters at night, straw mats being preferable. A board fence of six or seven feet in height, to shelter from the north and west winds, is indispensable when no such shelter otherwise exists.

[It will be perceived that a "Jersey Market Gardener" makes his beds in pits, which we consider far preferable to making them on the surface. The beds thus take up much less room, require less material, retain their heat longer, and in all respects require less trouble and care.—Ed.]

LANDSCAPE ADORNMENT—NO. VIII. TERRACES.

BY GEO. E. WOODWARD, CIVIL AND LANDSCAPE ENGINEER, 29 BROADWAY, N. Y.

The right line style of landscape gardening has now almost, by common consent, become obsolete—it is looked upon as one of the memories of the

past. Still it has been no easy matter to yield up our prejudices in its favor; grand and attractive as a display so entirely artificial may be, it sinks to a lower grade when compared with the beauties of the natural style. It is evident to all who have a knowledge of true art, that there is no higher scale of beauty known than that indicated by the teachings of nature. All forms of the imagination must yield to the exquisite beauty of natural forms, and the highest conceptions of angelic form and beauty must be content by adding wings to a beautiful woman.

The right line in the formation of terraces seems to be a lingering reminiscence of the old school, and one that does not meet with much disfavor among the practitioners of the new. We propose, however, to advance some suggestions which, to our notions, render the use of terraces in landscape adornment not only applicable, but thoroughly in keeping with the admitted excellences of the natural style.

Perhaps there is no better school for the study of natural terracing than in the alluvial bottoms or valleys of western rivers. Although on a grand scale, the hint is sufficient for one who has an eye for landscape beauty. The different stages of rapid running water following the graceful meandering lines of its direction, has worked out, in the course of ages, a series of natural terraces, the outline of which is a continued succession of graceful curves, bold projections, and beautiful indentations; the surface of each terrace is a water level from front to rear, and descending in its length with the descent of the stream, say one to two feet per mile. These prairie bottoms and terraces are handsomely grassed during the summer months, and the illustration in its natural state is as perfect as if they were constructed from a plan. Now, as a matter of taste, compare the level grade and curved outlines of a natural terrace (which we say should be adopted in the natural style of landscape gardening) with the bold, artificial straight-line system that is every where in use. Will the broad sunlight on one compare with the exquisite light and shade that are forever changing in the other? and will the single view that takes in all the artificial terrace be equivalent to the unwearying variety that the natural terrace affords? Does not the natural terrace give greater facilities for a display of taste? Will not lawn, or flowers, or ornamental trees find a chance to produce new beauties in general effect? and will the staring plainness of the one compensate for the inviting charms of the other? We are open to conviction.

Again, as a matter of construction. The history of terrace building all up and down the Hudson is a history of failures; the labor and expenditures of weeks have slipped away in a single night—the long, straight line of earth yields all at once. That principle which in architecture introduces buttresses in walls sustaining a thrust, does not enter the head of a terrace builder; he, half-fledged and unsophisticated, has not the shadow of an idea whether his terrace will stand one night, one year, or be always permanent; it is not a matter of fact with him so much as a matter of hope—a sort of a gambling experiment, and his neighbors' failures show that the chances are against him.

Now we do not pretend to say that it is impossible to build a permanent straight-line artificial terrace any where, because in the hands of an educated civil engineer nothing is impossible; and a landscape gardener who is not well read up in all the details of civil engineering, has got the biggest half of his profession yet to learn. We state that, in the construction of terraces, the natural terrace affords a more tasteful use of the principles of construc-

tion, and a better opportunity to conceal the art that reproduces the designs of nature; the winding outline broadens the base, the salient points are the buttresses, and the thrust or pressure of the earth, instead of being down the slope, is toward nearly every point of the compass; and should a sudden flood weaken any point, there are such different conditions of security that none other would follow it.

In the formation of terraces in ground liable to slip, we recommend strongly, from a long practical experience, the use of fascines or brushwood, to be put on in alternate layers with earth; by crossing and lapping the end of the brush, this network may be extended indefinitely. The enormous strength of wood, pulled in the direction of its fibre, is not thoroughly understood. Practical experiments show it to be one fifth the strength of wrought iron; those who have endeavored to pull up strong roots have some idea of it. The durability of wood below the surface of the earth, where it is not exposed to the action of the atmosphere, has scarcely any limit, and for all practical purposes may be considered permanent. A judicious and intelligent use of brushwood in any class of earth work having steep slopes will be as effectual as if the whole were interlaced with roots.

We do not mean to convey the idea that a natural terrace is a series of scollops, or that there is any repetition in its forms; on the contrary, variety must control the design—nature does not repeat herself. It does not follow that each successive terrace should copy the same form above it, for there is no arbitrary rule or supposition in any matters of taste. Terraces about the house, or as used in connecting the house with the grounds, should be of an artificial or architectural character, being sometimes used as a medium to break any abruptness in passing from natural scenery, in which art is concealed, to a form of construction in which art must be apparent.

[On the score of beauty there can be no doubt that Mr. Woodward is right. The subject deserves to be well considered.—Ed.]

GRAPES AND PEARS.

BY A. HUIDEKOPER, MEADVILLE, PENNSYLVANIA.

Two years ago, some correspondents, with but a poor appreciation of the value of a free press, were gravely inquiring, in the columns of a useful and widely popular journal, whether the Horticulturist ought not to be tabooed by all pomologists; the gravamen of its offense being, that the editor was supposed to be friendly to a more general introduction of grapes, and had admitted to his pages the inquiry, whether pears on dwarfs could be profitably grown for the market. The evidences on that occasion were but in keeping with the common philosophy of life. Success is ever prone to hang its banner upon the outer walls, while failure is equally disposed to shield itself from public observation. It reminded me of an incident related by a friend who had been on a visit to New Orleans. "In driving about the city one day," said he, "my chaperone pointed out a very costly and imposing residence; that, he observed, is the residence of Mr. A., who came here from the North some twenty years ago, a poor young man; he had a good constitution, which

withstood the yellow fever, and now he has amassed the princely fortune which his homestead would indicate. But, continued he, of the twenty thousand poor young men who have come here from the North in the mean time, who did not make a fortune, who did not survive the yellow fever, and whose bones lie interred in our city churchyards, no outward sign remains, and nothing is said of them." I refer to that discussion simply to show that science never suffers from the ventilation of its facts, and that the HORTICULTURIST, in sustaining as it should the independence of the press, has not inflicted any of the anticipated injury upon the public.

While vine culture has fortified itself vastly in popular estimation, there are probably three pear trees sold now for one at any former period of our history. A hundred thousand amateurs will every year be added to the list of those who grow dwarf pears, caring but little "if they are profitable for the market or not," if they can only grow them for themselves. Even the very difficulties and limitations of pear culture pointed out, with many minds became incentives for the experiment; for such is humanity, that

"If the way be dangerous shown,
The danger's self is lure alone."

Then that discussion led on to a world of practical information in pear culture well worth having, such as the proper conditions of soil and culture to insure success; the giving the trees a good start at first, and not hoping to coax them into thrift after a year or two of stint and starvation; the philosophy of deep and shallow planting, of high and low grafting, &c.; to say nothing of the hope and encouragement to those whose trees had been frozen and blighted, given by sundry fathers in pomology, who, in grave council assembled, resolved that summer's heat and winter's cold were but other terms for nonsense, *ours* being the best climate for pear growing in the world, the isothermal lines of *our* climate not being very clearly set forth on the black board of illustration.

I have heard of but two or three instances of blight, and that on a limited scale, and the present has been a very propitious year in pear growing in this region, almost all those who have trees having had fruit. The leading varieties, such as the Seckel, Tyson, White Doyenné, and Genesee, fully sustained themselves, both in size and the character of their fruit; but many of the summer varieties were flavorless, probably owing to the unusual coldness of the season; even the Nelis, one of the best generally of all pears, hardly came up to its proper standard of excellence. The fruit of a Buffum tree with me (I suppose the tree to have received some injury by the water, from a spout during the winter,) cracked partially, early in the summer, but before the season was over the cracks healed up and the fruit became sound at maturity.

The blight shows itself on the pear tree in several different ways, or with different degrees of malignity; sometimes it is localized in a limb, for which the remedy is thorough amputation; sometimes the epidermis will become black, while the inner bark appears to be all right, and the tree can be saved by removing the discolored part, when a new and sound bark takes its place. The only standard tree I have left was affected in this way some years ago, and is now a sound tree, producing fruit. Another form of the blight appears to be a vitiated condition of the sap, for which I suppose there is no remedy. Persons who have trees that turn suddenly black in midsummer are apt to suppose the disease comes on at that time; but I apprehend a careful

examination will always show an unsound condition of the tree several months beforehand.

It is no evidence that a tree is sound because it breaks into leaf, or even makes a reasonable growth; many a tree will do this after the bark is entirely winter-killed at the collar of the tree: pepperage or gum tree will continue to live for several years after being girdled. The solar heat at first only brings into action the sap in the body of the tree, without reference to a new supply from the root; a limb subjected to a reflected heat will often come into bloom before the rest of the tree has got fairly into bud; and this fact makes it questionable if it is practicable, as is sometimes suggested, to retard a tree so as to escape spring frosts, by the packing snow about the roots of it.

The injury which fruit trees sometimes receive from unseasonable reflected heat from the earth, suggests further experiments with our forest trees as foundations for the pear. Of the stocks on which it is known to grow, viz., the apple, crab, quince, thorn, mountain ash, and June or service berry, all but the last are more or less subject to the blight. The June berry is hardy, and if it will answer, as some correspondent says it will, it may be worthy of more extensive trial. No doubt, affinities with the pear are not all exhausted, and other trees from the forest might answer likewise. The budding a few limbs at the proper season would test the matter at a small outlay of trouble, and possibly show the truth of the old adage, that an ounce of practice is worth a pound of theory.

In 1853 I had a small vinery built, in size 20 by 22 feet, of which a report is made in the HORTICULTURIST, in vol. iv., page 545. At the same time I devoted an equal amount of space to a dozen dwarf pear trees. The grounds have been about equally enriched since, with well-decomposed manures, and vines and trees have alike been protected in the winter with straw. The paid-for labor has been about the same with regard to both; therefore I make no note of it, or of the pruning the vines, thinning the fruit, and irrigation, which have throughout been a matter of personal recreation and amusement. No fire was introduced into the vinery until last year, since when some ten or fifteen times it has been used as a protection from frost. The ground between the pear trees has been annually planted with carrots and beets, and the soil kept clean, light, and in good condition.

Now, although the above is not a very good show for the pears, I would say in candor, that the trees have grown more during the last two years than they did in the preceding five; and if they had not been removed to make room for an enlargement of the grapery this fall, I have no doubt they would have told a better story for themselves hereafter. A neighbor of mine, whose orchard is on elevated ground, and whose soil is rich but rather wet, had this year a very respectable crop of pears on his trees, five years planted. If dwarf pears do not succeed in this region, it will not be for want of a fair and honest trial.

I will endeavor to send the editor of the HORTICULTURIST a sample of wine made by a friend from the variety of grape described in last year's vol., page 365. It has the color and body of good port wine, and would no doubt have been a still better article if some sugar had not been used in the manufacture of it.

In my vinery I grew two good-sized canes this year horizontally on the ground, so as not to interfere at all with the fruit-bearing vines. The wood

ripened well, and if the canes produce right, I will report again next year. We commenced cutting grapes in the middle of August, and are still (Dec. 17) enjoying our Muscats, crisp, fresh, and luscious as when first gathered; having thus had the fruit in eating over four months, or one third of the year.

The result, then, of a seven years' experiment stands thus:

Cr.	Grapery—Fruit, bunches in 1854	150		
	Do. do. 1855	350		
	Do. do. 1856–7–8–9, 1860	2,300		
	Total	2,800		
	Deduct ¼ to reduce to pounds	700		
	At 60 cents, a low market price	2,100	give	$1,260
Dr.	Original cost of grapery		$150	
	Add 2 years' interest till paid for by fruit		18	
	For re-painting, fuel, &c., and vines		52	
				220
	Apparent profit			$1,040
Dr.	1 dozen pear trees and freight			$15
	Fruit in 6 years		50	
	Do. in 1860		150	
	Total, at 3 cents apiece		200	6
	Loss			$9

[Very suggestive. The subject of "tabooing" is one for which we have little respect. An editor, above all men, ought to be independent, and his readers ought to appreciate that simple fact. It is always pleasant to have people agree with us, but then there are always two sides to a question, and a discussion is sometimes, if properly conducted, a short method of arriving at truth. You are all right on that question. You make but a poor show for the pear; we can do better than that; still, we arrive at the same conclusion, that the grape is the most profitable. We shall look for the wine expectantly.—Ed.]

THE MAN AT THE PUMP.

BY FOX MEADOW.

"We will just take a look through, if you please. We understand you have commenced forcing?" "Look through with pleasure, sir; but you will see no forcing." "*No forcing?*" "No, sir, *no forcing.*" "Why, I understood that you forced all your vines." "People very often get into errors, sir, and make very grave mistakes, which we are sorry to see; and if they have told you, sir, that we *force* our vines, that is a *monstrous* error." "Well," said Mr. Pry, "let us have a look at your bare vines, then; it's no use coming here for nothing." So he got an introduction to "Vitis Vinifera."

"Ah, sir, I thought you told me you did not force. How comes it the foli-

age and fruit are showing if you don't *force?*" "By *inducing* it, sir." Mr. Pry knitted his brows, shrugged his shoulders, and walked on—*more sharper*—never said another word to us after that, Mr. Editor. We thought he had picked up the name of some plant, and was hurrying home with it as fast as possible to write it down before he forgot it.

Nothing requires, perhaps, more care and thought than the vine in attempting to bring it into growth out of its natural season. There is, perhaps, more damage done by an excess of heat in the early season of the year than from any other cause. We should bear in mind that all our vine-borders are not constructed on "Bright's system," inside the house, with a compost nearly allied to the atmospheric temperature, but that the roots are in a cold, and oftentimes wet, perishing soil, and that soil, perhaps, not much above the freezing point. Force up the sap, is the cry. Let us understand, first, how it is to be made. A liquidization, first, of all that sap in the branches that has been congealed by the loss of heat the previous fall takes place. Now, let us mark this operation in reference to the heat applied. If *too high* a temperature, this liquid is evaporated, leaving some of the spurs and buds *dead;* in other cases, it will shoot off and burst out, perhaps, in one single eye, with the consistency of a straw. There is no proper circulation of the sap going on. This is what we call *forcing.* The above results are more perceptible in badly-ripened wood, than when vines are regularly early worked. Let us now follow this sap that has been worked up at a high temperature down the vine into that wet, icy, perishable soil. How is it going to return? What have the poor roots been able to *collect* out of that wet, clammy soil? Something congenial to elaborate that beautiful tissue of the leaf, the tender and delicate anther and pollen? Or would this be something like ourselves turned out of a hot room, lightly clad, into the frost and snow, barefoot, to go a distance for a drink of water to quench a parching thirst? What would be our condition on re-entering this hot room? Faint, sick, clogging up of all the pores, tremendous internal heat, and *oh*, I think I shall die! Because plants have not tongues and throats to make a noise and cry out they are *dying!* it appears it is all right. I sometimes think it is well for us that plants are not possessed with good strong muscular arms; it saves us many a box on our intellectual craniums.

There are many reasons why the process of developing the powers of the vine should be slow, and the temperature low, in what is termed "*early forcing.*" There is the partial absence of light, which influence has a wonderful power in producing the *dark green* foliage with a texture and solidity that delights us to look on. We say, work steady and low. Let the vine develop *itself.* Do not attempt to develop the vine. Watch the foliage narrowly. If it comes out and seems to stand for a few days all crumpled up, something like a young rhubarb leaf in miniature, you may rest assured that the vine is doing the work just in its own way—expanding just as fast as it can collect material for elaboration; but if you see the young leaf appear, and almost at once it is expanded into its proper form, with a texture that a person with ordinary good eyesight could read a newspaper through, and of a beautiful, delicate light-green, *then* you may depend upon the fact that you have been *forcing* in good earnest. This sort of forcing is similar to a man we once saw with a pump placed on a heap of ice. The ice was slowly condensing, and he continued with all his might and main to pump up the condensed water, *but it did not come.* After a while, he got exhausted and stopped; presently, away he drives again, and he succeeded in getting some little, and then again it stopped. He would look sometimes into

the pump, and around the pump; he never, as we saw, looked into the right place. We left him looking, and ran home—"*more sharper*"—to make a note of it.

As soon as the young shoot showing the fruit has grown long enough to discover a leaf or two beyond the bunch, pinch out the point *immediately;* this will throw the sap *direct* into the bunch and remaining leaves. We saw that man at the pump one day *breaking* off the ends of these young shoots after they had grown some eighteen inches past the bunch—snapped off so very easy at a good joint, he said, and was much less trouble. We thought this was very much like chopping off a man's arms and letting him bleed to death. Poor vines, we wish they had tongues.

Increase the temperature gradually as they advance toward flowering. When vines are worked in a medium temperature, they will not require so much *evaporating* moisture as is requisite in high temperatures. Keep the *night* heat not above 60° Fahrenheit. The man at the pump showed us a shoot the other day that had, he said, during the night, grown more than twelve inches. We thought it was no growth at all, but merely *forcing* an elongation of the cellular tissue. When syringing, use common soap in the water *constantly;* it will save some trouble with those little animals that come from *somewhere*, they call red spider, thrips, scale, yes, and mildew.

Begin to thin out the berries from the bunches *just so soon as you can be sure they are berries.* Just try this little experiment on one vine, if it is only to convince *that man at the pump.* Tell him, also, that it is not the amount of that luscious saccharine matter which destroys the productiveness of the vine or its longevity, but that it is the *seed*—that which contains the "GREAT LIFE PRINCIPLE."

Tax this in the vine—in any thing, vegetable creation or animal—and DEATH *is the inevitable doom.*

[It is, no doubt, fortunate for the "Man at the Pump" that vines have not arms, or *his* cranium certainly would suffer. Many of the difficulties of starting vines early would be overcome by converting the whole interior of the house into a border, and planting the vines inside, as we have heretofore recommended. Fox Meadow's caution against using too much heat in *starting* a vine, can not be too well considered, for it is a frequent cause of failure. All who have forcing-houses will do well to think of the "Man at the Pump."—ED.]

COLOR OF FRUIT.

BY WILLIAM BRIGHT, PHILADELPHIA.

THE pears exhibited by Dr. Boynton, of Syracuse, at the last meeting of the American Pomological Society, attracted much attention from the unusually waxy and glossy appearance of the skin, and the extraordinary brilliancy of their coloring. Dr. Boynton offered to the Society, in some extended remarks, his idea of the probable cause of this color and gloss of skin, but no correct report has yet been given of these remarks in any of our journals. The chief idea was, that the effect above noticed was produced by growing the fruit upon a soil containing a great variety of mineral or inorganic substances, and by the free use of superphosphate of lime, and of potash, soda,

and the common carbonate of lime, which, acting upon silica, produced the silicate of potash, the silicate of soda and lime in abundance, and thus created a covering upon the pears similar to the silicious coating on the corn-stalk. On this dense surface the rays of the sun pencil the prismatic hues with a degree of brilliancy and perfection rarely witnessed. The doctor thought it not impossible that he could so perfect this metallic coating that he could, at some future meeting, present his best specimens of fruit with his own photographic portrait on their sides!

I notice this matter now for the purpose of saying, that those who may wish to experiment in this direction may find some more convenient sources of obtaining the necessary materials, than were mentioned by Dr. B., as his supplies of alkalies were mostly found at the Syracuse Salt Works.

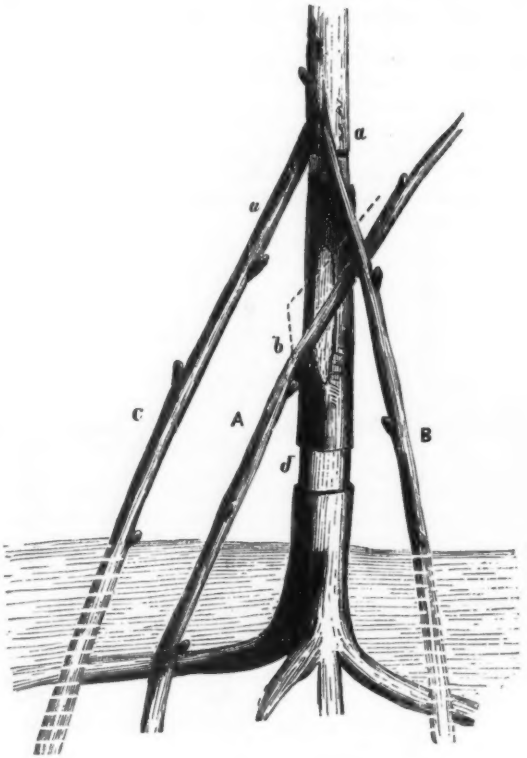
The use of the common "salt and lime mixture" (viz., three bushels of lime slacked with a barrel of brine, or one bushel of salt in solution) will give the chloride of lime and the carbonate of soda, which Dr. B. spoke of so highly; while common sour peat or muck, or even decaying straw, or old litter, or leaves, mixed with sand, will create, *by the action of carbonic acid on silex*, a large amount of soluble silica; and silica, or rotten, sandy rock, dissolved by carbonic acid, will in its turn, by liberating potash from the rock, now dissolve other rock, and form silicate of potash. Hence, sour muck and sand, with a slight addition of salt, lime, and wood ashes, will furnish a cheap and convenient means of producing the silicates which Dr. Boynton thinks such important agents in creating the dense, glossy, high-colored skin of his pears.

The usual method of top-dressing dwarf pear gardens with well-rotted carbonaceous composts in a degree produces the same effect as the above mixtures, and the result, we all know, is very satisfactory.

There is a good deal of plausibility in Dr. Boynton's theory; but we must not expect similar results from using the same means on all soils, for Dr. Boynton acknowledged that his soil was originally a sort of "conglomerate rock soup," made up of the contents of Lake Ontario basin, which no man can hope to imitate, or find elsewhere, in precisely similar combinations. It may be well, also, to caution amateurs, or unscientific persons, against the too free application of alkalies to fruit trees, as there have been cases lately, within my knowledge, where very intelligent persons have destroyed many valuable surface roots, and even entire trees, by too careless or too bold experiments of this kind. The "æsthetic farmer," says the oracular Ralph, "thinks a cow is a creature fed on hay, and gives a bucket of milk twice a day. But the cow that he buys gives milk for three months, and then her bag dries up." Pear trees are very much like milch cows; they require to be fed and managed by a practical hand, or they too will "dry up" most mysteriously sometimes. I by no means reject the aid of science; I only wish to warn Mr. Jesse Rural against excessive fondness for chemical experiments in his first efforts in the garden.

[This caution is a necessary one, for the young experimentalist generally "goes it blind." We are somewhat inclined to doubt whether the beautiful "face" on Dr. Boynton's fruit was produced by additions of his own; it is quite likely, if we may judge from his description, that the salts were naturally contained in the soil. We must accord him the merit, however, of having noted the fact, and led the way in making experiments to produce the same results by the addition of salts and alkalies, in proper proportions and combina-

tions, in soils not naturally containing them. Certain localities (around Boston, for instance) have long been noted for producing pears highly colored and very glossy; others, again, (as portions of New Jersey,) are noted for producing the same kinds of pears of a deep russet. This, unquestionably, is owing somewhat to the mineral constituents of the soil, but probably quite as much to careful culture. The subject is one of peculiar interest, and we hope Dr. Boynton and others will follow up the experiment, and make a note of the result.—ED.]



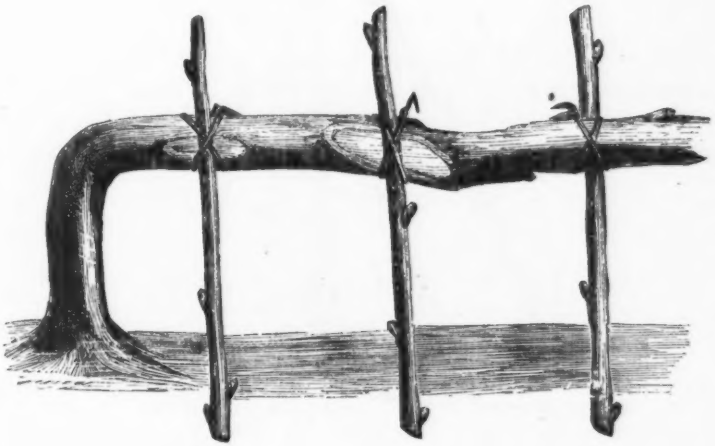
INARCHING—AN IMPROVEMENT.

BY D. L. ADAIR, HAWESVILLE, KENTUCKY.

IN my last I gave a description of my improved method of "Fruit Bud Grafting." I have also made some improvement upon the method of inarching, as described in the January number of the HORTICULTURIST for 1860, from

the *Revue Horticole*, which is explained by figure 1. The branch or scion, A, is set so that it will lay against the root at *c*. The bark is pared off at the root, and also the scion, so as to bring the alburnum of each into contact with the other. Where the scion crosses the stock at *b*, the same operation is performed. The scion and root are tied together as shown, and at *b* the stock and scion are well wrapped with any material used in budding, and well waxed; or, instead of the wax, I find that drawing up a hill of earth some three inches above where they cross answers every purpose. A ring of bark is taken off at *d* for the same purpose as described in the directions for spur grafting. After the graft has set, the scion and stock are cut off at the dotted lines at *b*, and the root at the dotted lines shown thereon, which is planted as a separate tree.

I find inarching a very convenient mode of propagating such trees as do not grow well out of doors from the cutting; also roses and grape vines. B and C, fig. 1, show how it is done. The lower end of the cutting is inserted in the ground, and the upper end inserted under the bark at *a a*, as described in spur grafting, and tied the same way. After the cuttings have grown one year and struck roots, they are separated from the stock, taken up, and planted in the nursery rows. A dozen or more plants may be raised thus around a single mother stock, without injury to it.



I modify the process somewhat when I apply it to the grape. Figure 2 will explain how it is done. A vine or a branch of a vine is laid down, horizontally, and the cuttings, 4 or 5 inches long, containing two or more eyes or buds, are inserted in the ground. The bark is removed from the cutting where it crosses the vine, and also from the side of the vine, as before described. They are firmly tied together, and cuttings, vines, and all covered with earth, so as to have the upper bud on the scion covered about ½ inch. The cuttings may be placed three inches or even less apart along the whole length of the vine. After

they have grown one year, they may be taken up, the vine cut into pieces, each having a rooted cutting on it, and the plants are ready for planting out.

I should have stated that the proper season for performing all of these o r-ations is at budding time, sooner or later in the summer, depending upon the tree to be operated on. The grape cuttings should be cut in the fall or winter, and kept in a cool place in sand or moss until the first flow of sap is over, in the growing vines, when they may be inarched.

[We should be glad to have Mr. Adair's improvements thoroughly tried. If, in the case of the vine, the union should be a permanent one, a point will have been gained. There will then be an old vine furnished with scions at intervals, beside the rooted plants in the ground, and this seems to be more than Mr. Adair claims.—Ed.]

THE ROSE-SLUG.

BY A. VEITCH, NEW HAVEN, CONN.

"If you will publish something that will save my *Roses* from the deliberate slaughter of these murderous pests, which have nearly destroyed my large and choice varieties of beauties, I shall deem the information cheaply purchased by paying for half a dozen copies. Tobacco, and smoke, and sulphur, and lime, and plaster, and woman's tears, and men's imprecations, are alike harmless to exorcise those miscreants which 'plague mankind.'"—*Horticulturist*, 1860, p. 443.

By the rose-grower the slug is justly considered as one of the most obnoxious pests he has to contend with; and if not carefully guarded against, it is sure to blast the hopes and high expectations he may have cherished all the winter long, of the pure and unalloyed delight in store for him during the rose season, when every bush, the picture of health and careful cultivation, is heavily laden with beautiful buds and magnificent full-blown flowers. But often, alas! when such hopes are about to be realized, it can only be said,

"The spoiler came; and all thy promise fair
Has sought the grave, to sleep forever there."

There does not seem to be any thing in the case, however, so discouraging as to deter him from persevering in his delightful employment, as the means of prevention and of cure are within the reach of persons of moderate means. Not to say any thing of timely applications of whale oil soap and Gishurst Compound, which latter composition, by-the-by, is a very certain remedy, we have another to propose, which may appear ridiculous to some from its simplicity; yet still, upon the testimony of competent witnesses, it can be vouched for as a complete preventive and an effectual cure. It is simply *pure water:* but water mechanically applied.

A box sufficiently large to suit the requirements of the establishment where it is to be used, mounted upon a four-wheeled carriage, and a force-pump attached, with rubber hose, say eight or ten feet in length, is what we have seen used with the most satisfactory results. In regard to the mode of operation,

the bushes ought to be syringed twice or thrice a week, from about the middle of May until about the middle of July, when the slug season may fairly be considered to have closed. But even with this mode of treatment, it need not be wondered at if some make their appearance upon solitary bushes. Should they do so, all that is necessary is to apply as much power to the pump as to be certain of the water reaching every part of the plant with force enough to drive them away; and that can easily be done, as, with the hose sufficiently long, the operator can get at them on every side, and under the leaves as well, which is of the utmost importance, as it is there chiefly the depredators ensconce themselves for safety. As a precaution against permitting the fallen enemy from regaining his lost position, it is well to rake the beds as soon after each watering as practicable, as by this means their destruction is made doubly sure.

In addition to keeping the plants free of slug, it will appear evident that other benefits are conferred, for which they will not be ungrateful. A regular supply of water is highly advantageous to roses during the early part of summer, especially in situations where the soil in which they grow is light and sandy. In ordinary cases, however, it is safest to water with a gentle hand, as the young foliage of roses, as well as other plants, suffers greatly from every kind of rough treatment. This will appear evident to any one the least acquainted with the structure of leaves, whose innumerable stomata and delicate external coverings, plead, and plead earnestly, for far other treatment than they often receive.

However simple the method herein recommended may appear, no harm can be done by giving it a trial. Should your last year's correspondent be one of those, you, Mr. Editor, would not hear any more complaints from him of disappointment and grief at the destruction of his favorites.

[Here is a very simple and practicable method of treating the slug, not only for our correspondent, but for all others: a remedy "without money and without price." Let it be tried. We have no doubt that the Gishurst Compound will also be a certain cure.—Ed.]

APPLES—ARE THEY RUNNING OUT?

BY C. W. G.

We hear much of the deterioration of varieties, and even of their entirely running out and failing altogether. And, again, we hear much of trees suited to one locality or district, and not to another. Of the former, in the sense in which it is generally taken, we have no belief. In the latter we have, in a restricted sense.

To illustrate with a very marked instance, we will take Rawle's Jannet, which puts out its leaves very late in the spring, and is so late in flowering, and consequent maturing of its fruit, that it is unfit for a northern latitude. On the contrary, we believe most of our standard varieties will sustain their high character throughout the apple-growing region north of the thirty-eighth parallel. We must here admit that in many localities we find local seedlings of almost equal value to the general standards, and in these Connecticut, and perhaps Ohio, stand pre-eminent. But the fact that we wish to state is, that

for premium, for the twelve best varieties of fall and winter table varieties, we have found nearly the same kinds offered in Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, and Iowa. These are complete or *perfect* varieties, and under good treatment will prosper in every place within the specified limits in which any apple trees will thrive. Our observation, which has been pretty extended, and, we think, accurate, leads us to the belief that proper treatment is necessary for their perpetual prosperity in almost every locality; and the exception is so rare, that we are almost disposed to make the assertion general. For the soils which constantly sustain vigorous trees in their full production of fruit, must be referred to those rare formations of drift or alluvium which have a good elevation; bottoms and lowlands not affording the conditions of prosperity. Wherever we have found the apple failing or running out, natural conditions being favorable, we have found defective preparation before planting, or exhaustion of fertility in some obvious form, sufficient to account for all deterioration. On the other hand, we have seen the poorest soil, or that the most completely exhausted of its fertility, by generous preparation giving growth to the most healthy, thrifty, and productive trees which we ever beheld. The condition of the soil before preparation has much to do with the cost of preparation, of course; but the case is rare in which considerable preparation is not required to maintain perpetual productiveness. Seek out the general want of the fruit, and supply it, and special wants will be few.

We shall recur to this at another opportunity, with some special considerations.

[The above, from an old and experienced pomologist, bears directly on a subject which has at times been productive of much discussion. It is to the point. We have heretofore expressed our conviction against the idea that our old favorite apples are "running out."—Ed.]

AMERICAN SHADE TREES.—NO. I.

BY C. N. BEMENT.

Among all the materials at our disposal for the adornment of country residences, none are at once so highly ornamental, so indispensable, and so easily and completely manageable as trees; and our resources in that respect are surprisingly great. We introduce them into the landscape—in the foreground as well as in the distance, on the tops of the hills, and in the valleys. They are, indeed, like the drapery which covers a somewhat ungainly figure, which, while it conceals its defects, communicates to it new interest and expression.

Trees, in their many forms, are one of the greatest sources of interest and character in landscapes. Variety, as a source of beauty, is created in a wonderful degree by a natural arrangement of trees. Airy and delicate in its youth, luxuriant and majestic in its prime, venerable in its old age, the tree constitutes in its various forms, sizes, and developments, the greatest charm and beauty on the earth in all countries.

Nothing is so attractive to the traveler as fine country residences; and how much might be added to the appearance of many, indeed most of our farms, if proper attention were paid to the planting of shade trees in their

appropriate places. They are something for the eye to feast upon; they please the imagination, cheer the heart, and bring with them all the associations of happiness. Sociality, refinement, and learning follow in the train of rural improvement. Nothing contributes, in our estimation, so much to the pleasantness of a place as the presence of trees; and surely no luxury of half their value can be procured for the same price. Springside owes a great share of its beauty and attractiveness to its shade trees.

No person claiming any pretensions for the beautiful in nature, could fail to notice, on visiting the beautiful village of Pittsfield, Mass., the tall, majestic elm, the monarch of the forest, the pride of the inhabitants, (who almost worship it,) standing in the center of the square, lifting its umbral branches on a trunk sixty feet to the first limb, and can be plainly distinguished for miles, towering above buildings and highest trees, surrounded by mountains and lofty hills, on a plain stretching from north to south, as far as the eye can reach, and from east to west to the mountains, situated in opposite directions; these hills and mountains are covered with deciduous trees, while on the plain itself, which is watered by the bright, sparkling Housatonic, the sycamore, the maple, and elm flourish in great abundance.

The country house that has its shade trees, its shrubbery, and flowers, has hallowed memories to win back the hearts of its wanderers, and brighten its gloomiest hours. The woman who fails to have a green spot and shade at her door, fails in one part of her mission! Her house will not be so endeared to its inmates as it otherwise would be! True, the outside decorations should chiefly belong to man's labor; but very many, we are constrained to say, will not plant a tree or shrub, who could be taught to love them, and add to them, if some one would begin. So, boys, go ahead; plant trees. Do it at once, or, at least, during the proper season. Do not delay it from year to year. Do not procrastinate until you have no time to plant a tree, shrub, or vine. Make a resolve, and carry the resolution into effect, that two trees at least shall be planted every year for each man, woman, and child on the farm. Recollect that handsome trees, judiciously planted, not only advance the beauty, but add greatly to the value of farms. Take, for instance, two farms of equal size and quality; let one have shade trees well located, while the other is bare of all these glories; put them up at public sale, and our word for it, the one with ornamental shade trees will command an advance of more than five times the cost of planting and attending to the trees.

A writer in a late number of the *Rural New-Yorker* sets forth our views so truthfully, we can not resist copying it: "Indiscriminate destruction of trees and shrubbery has generally characterized the clearings of our woodland pioneers. Many 'old settlers,' who once classed wolves and trees in the same category of extermination, have lived to mourn for their unwise course, and to endeavor to atone for their early folly by planting trees and shrubbery to supply future generations with the shade and ornament which might have been preserved while clearing around the house and farm.

"The comfort and value of a homestead and farm embellished with trees and shrubbery, contrasted with the desolate appearance of premises without such embellishments, furnish lessons that should not be neglected while clearing land. In the mere dollar-and cent aspect of the case, few things will 'pay' better than attention to this matter."

No element of beauty is so completely manageable as trees; and when judiciously planted, not only advance the beauty, but add greatly to the value

of the farm; they give a beautiful aspect to the homestead, and furnish, without direct expense, for the feathered minstrels a summer orchestra, cheering the heart, and delighting the ear of the lover of birds' songs.

Situated as we are, in the middle of the temperate zone, we have the best of the deciduous trees—the Oaks, the Elms, the Maples, the Beeches, the Birches, the Ashes, the Hickories, the Walnuts, the Cherries, the Chestnut, the Linden, Sycamore, and many others, of the temperate regions; together with the finest evergreens—the Pines, the Firs, the Spruces, the Hemlock, the Hackmatack, the Cedars, the Larch, and the Arbor Vitæ. Each one of these trees has its own peculiar and distinctly marked character, recognizable at a distance, and producing an effect which needs not to be mistaken for that of any other. Each has its own cycle of change, its own time of flowering, and of perfecting its fruit, and of opening, maturing, changing, and casting its foliage. Each has its own shape and its own color, distinguishing it from every other tree, even of the species most nearly allied. Hence the endless variety of forest scenery.

The numerous trees, and still more numerous flowering shrubs, which belong to our forests, all capable of being made to flourish freely in every part of the state, give the planter who is studious of the effects of landscape, inexhaustible resources. Some of the trees grow habitually to the height of only thirty or forty feet; others rise to seventy or a hundred. Judiciously grouped in planting, they are capable of giving to a level lawn or plain the appearance of any desired inequality of surface. The tall Pines, Elms, Lindens, and Locusts at a distance will seem to occupy a hill; the Maples and Hickories, broad Oaks and spreading Beeches, will form the grandest descent to the plain. Among these, a winding path leading under or near the largest trees and behind thickets, may give to a few acres all the advantages of variety of a large forest.

It is surprising how small is the number of trees necessary to produce a striking effect. Ten or twelve trees, fortunately or skillfully disposed on the sides of a hill, are often sufficient to give an air of richness, harmonizing perfectly with a highly cultivated country. The happy effect of three or four trees on an island gives an agreeable relief to the eye. A single tree by a farmer's house protects it, and gives it a desirable air of seclusion and rest—as it must be the residence of contentment. One almost covets a house so pleasantly sheltered; while an unprotected, solitary house, seems to shiver in the north wind, and we involuntarily wish for its inhabitants a more cheerful home. Why should not at least one tree be found growing near the dwelling of every man, even the poorest and the humblest?

In a country so much exposed as ours is, in consequence of the remarkable clearness of the atmosphere, to the burning heat of the sun, the use of trees for shade is not one of the least important. This use is closely allied to the last. A tree which furnishes a cool shade to the inhabitants of a house, is at the same time, and on that account, its best ornament. At the season when men travel for pleasure, a plain, low, modest house, with open grass plot in front before it, shaded by an Oak, Elm, or Linden, speaks more for the feelings, and is more beautiful than the showiest house unprotected from the sun. The traveler in a hot day welcomes every tree on the roadside. Even a thin fringe of white birches looks pleasant; and he remembers thankfully the kindness or good taste which has spared or planted a tree with a head broad and thick enough for him to rest under and cool himself.

SELECTION OF TREES.—The associations with the beauty of trees about our rural homes enter deeply into the best elements of our character; and we hope that what we have written may induce some of our readers to plant trees, for the purpose of increasing the beauty and the appearance of seclusion and quiet of the homes of their wives and children. The object, however, of this communication is for those who live on farms, who have few books and little leisure. It will accomplish the purpose for which it was written, if it awaken them to a deeper sense of the value of some of the blessings by which they are surrounded, and lead them, or any of them, to resolve to preserve the old trees and plant new.

The immense variety, the many and important uses, and the great beauty of our forest trees, must naturally attract the attention of an observer; and as the preservation and improvement of our farms and the country, on a system wisely begun and long continued, not by one, but by many men, not in one village or town, but in a county or state; it is wise in not acting merely for the present, but in extending its forethought generations onward, making its knowledge and wisdom an invested capital for coming generations, what they, when looking back, shall wish it had been done for them.

THE ELM.—The American Elm is, in most parts of the Eastern States, the most magnificent tree to be seen, and, probably, the one most cultivated, with the exception of the Maples, for shade and ornament. It affects many different shapes, and all of them beautiful. They are all long-lived trees, with hard wood, consisting of twisted and interlaced fibers, alternate, deciduous, harsh, serrated leaves, inequalate at base.

The single or compound plume is represented by trees stretching up in a single stem, or two or three parallel lines, to the height of seventy or even a hundred feet, and spreading out in one or two light feathering plumes. Of this character is the tall patriarch tree that stands alone on the common in Pittsfield. Many specimens of this form may be found in both Massachusetts and Connecticut, where the tall, primeval forest has been cut away, and the Elm alone has been left standing.

The character of the trunk is almost as various as that of the general form of the tree. You sometimes see it a straight, gradually-tapering column, shooting up to sixty or eighty feet, without a limb; at other times, an inverted small branch or two, pushing out at the fork, hangs waving downward for some feet. Again, you see it a verdant pillar of foliage, feathering from the branches to the ground.

With this endless variety of beauty, is it wonderful that the American Elm should be the greatest favorite with the New England people? And it has the additional recommendation of retaining much of its beauty when the foliage is gone. The sturdy trunk and the airy sweep of the branches are always there, and few objects of the kind are more beautiful than the feathered alternate regularity of the spray upon the outermost and uppermost boughs. With the earliest spring, these are fringed with numerous bunches of red blossoms, soon to give place to soft, delicious green of the young leaves.

Coming with such recommendations, the Elm is more frequently transplanted than any other forest tree, with the exception of the Maples, and, from the vigor and number of its roots, it is more sure than any other to live. It is oftener spared, too, in most parts of the country when the rest of the forest is to be cut away. We frequently, therefore, see it standing, for a shade to cattle in pastures, and by fences, and sometimes in mid-field, on tilled lands,

or left to shade and protect, and give an air of comfort to farm-houses. And in the excellent practice, becoming every year more common, of ornamenting towns and villages, and sheltering sunny roads with rows of trees, of trees, too, which, much as we value the Elm, we can not but consider its equals and often its superiors, the Maples, the Lindens, Birches, Beeches, and even the monarch of the forest, the lordly Oak itself.

The Elm grows in almost any soil, but never attains its loftiest elevation except in rich, moist ground, such as is found on the banks of rivers. In such situations, it has so rapid a growth, that one who has planted it may live, without passing beyond the ordinary age of man, to see it become a magnificent tree. It is very tenacious of life, and bears transplanting of every size, from five to six and even twenty feet.

[Mr. Bement is an ardent lover of nature, and he will be found to speak warmly in praise of his favorites. He has said none too much of the Elm, one of the stateliest trees that any country can boast of. His article will be continued.—Ed.]

FERNS—REMARKS UPON.

BY DANIEL BARKER, SPRINGFIELD, MASSACHUSETTS.

"Ferns," or "filices," (so called from their beautiful forms,) have many claims on public attention, and it is very gratifying to know that all those who have any pretension to good taste in matters pertaining to gardening are beginning to recognize their great beauty. The day is not very remote when Ferns will be considered as among the most indispensable of plants to give effect to and grace the scenery of the garden, as well as for the green and hot house.

Not only are they becoming objects of peculiar interest to the amateur and florist, but equally so to the landscape gardener. This assertion may cause some to doubt whether plants of such humble growth, and withal so common, can be brought to bear any part in and give effect to any scene created by the landscape gardener.

Within a few years, or since what is called the natural style of gardening has become fashionable, the cry of the landscape gardener has been, Imitate nature. If, then, this maxim is to be carried out, let us visit the beautiful wilds of nature with which this country abounds, and there *study* the effect produced, not only by the giants of the forest, but by every tree and shrub, ay, by every procumbent plant, however humble its pretensions, and lest they should not arrest our attention sooner, let us take particular notice what part our humble but beautiful ferns bear in our wild woodland scenes. I fearlessly assert, that no one with any pretensions to good taste in landscape gardening can visit such scenes, and therein read nature's volume, without receiving many useful and important lessons, such as *can not* be attained in any seminary or college in existence. While visiting any fern-clad vale, and surrounded by their elegant forms and fragrance, let us decide whether they are not fit and proper subjects to add grace and beauty to any scene adapted by nature, or otherwise, to their requirements.

Ferns are ill adapted for any *fantastical display;* for such a purpose they are entirely out of place. If, then, we are to imitate nature, let not this be overlooked. If, on the other hand, we use our beautiful native species for the decoration of those portions of our gardens where they are not out of place and character, they will be found to add a charm and elegance to the same, and without them a *deficiency* must exist.

But to enter into details upon their adaptability for the adornment of the landscape is not my present purpose. My object is to notice some of the more prominent species and varieties, with their modes of culture in the green and hot house, portable plant-cases, and the rookery.

I will commence my remarks with a few of those which require the temperature of the green-house, prominent among which is the Scolopendrium, or Hart's Tongue, Scolopendrium vulgarum, Scolopendrium officinarum of Swartz, Asplenium scolopendrium of Linnæus, Phyllitis scolopendrium of Newman. In a quaint old herbal, bearing date 1597, Gerard tells us that decoctions made from this fern "doth open the hardnesse and stoppings of the spleen and liver, and all other griefs," etc. At the present day, it does not figure in any of our pharmacopœias. It is a beautiful evergreen Fern, a native of Britain and this country. It is said by Wood to grow upon shady rocks at Chittenango, New York, to which vicinity it appears to be entirely confined, which is remarkable, inasmuch as it is very soriferous, and very distinct in its character.

In its native habitat throughout Europe, in dry and rocky locations, it grows small, not more than from six to eight inches in height; but in low, damp places, ravines, etc., its fronds may be frequently found from two to three feet in length, drooping from the rizoma in the most elegant and graceful curves. The treatment of the genus Scolopendrium is very simple: a soil containing an abundance of vegetable matter, such as decayed wood leaves, etc., with about one fourth of loam, with plenty of drainage in the pots, placed in a very shady part of the green-house or fernery, with a damp atmosphere, it will grow luxuriantly, and soon become a magnificent object, equaling in beauty the much-admired Bird's Nest Fern, Asplenium nidus, a native of New Holland.

I am unacquainted with any Fern that has sported so many and elegant varieties as the Scolopendrium vulgarum, some of which are of the most extraordinary and beautiful characters imaginable, altogether unlike the original species. It is most interesting and instructive to witness the different forms they assume under cultivation. There are upward of sixty varieties which have received names, many of which are exceedingly variable, while others are quite permanent in their developments, and can be reproduced by spores, which they produce in countless millions. A few of the most beautiful of the varieties are as follows:

Scolopendrium Crispum.—One of the most interesting and beautiful. The two edges of the frond are elegantly undulated, (*crisped.*) This variety is very constant under cultivation, but I have never found it in a soriferous state.

Scolopendrium Crista Galli.—A very beautiful variety. The lower portion of the fronds are much like the species, but near the ends they burst out into a reduplication of folds something like the cockscomb. It remains constant in cultivation, and is soriferous.

Scolopendrium Proliferum.—A most interesting variety, seldom exceeding three inches in height; one of the very best for growing in the portable plant-case. Unfortunately, it is rather scarce.

Scolopendrium Polyschides, (*Angustifolium.*)—A very elegant narrow frond variety, seldom exceeding ten inches in height. It is quite constant under cultivation, and is soriferous.

Scolopendrium Ramosum Major.—A strong-growing variety, closely approximating to the normal form. It remains constant under cultivation, and is soriferous.

Scolopendrium Polyschides Nivo.—Of a more humble growth than Polyschides, producing viviparous bulbules upon the upper surface of the fronds, which ultimately become plants. It is constant under cultivation, but I have hitherto failed to discern any sori upon any specimens which have come under my notice.

Scolopendrium Dædaleum, (*Digitatum.*)—Close-tufted habit, very fine.

Scolopendrium Crenatum Lobatum.—Fronds deeply crenated: fine.

Scolopendrium Marginatum.—A deep green and fine variety.

Scolopendrium Submarginatum.—One of the most graceful and beautiful varieties: *rare.*

Scolopendrium Vulgare Laceratum, (*Endivafolium Crispa Major.*)—A compact, dense-growing variety, with beautiful crisped fronds.

[It is only of late that the availability of Ferns, etc., for ornamental purposes has been to any extent recognized. Mr. Barker has pointed out some of the uses to which they are adapted. We would call attention to them as especially suited to plant-cases for rooms. We can think of no more beautiful object for a parlor.—ED.]

PINK AND PICOTEE.

(*See Frontispiece.*)

BY THE EDITOR.

WE have selected for our present *Frontispiece* two very beautiful flowers, a Pink and a Picotee, both taken from *Turner's Florist.* They are both new, and rank as first-class flowers. They afford striking evidence of the improvement which has been effected in this class of flowers during recent years. We have in preparation a plate of American seedlings, which we shall present for the purpose of comparison, as well as to show what we are doing here. It is now considered indispensable to a first-class flower that the outline should be circular and the edges of the petals smooth, and the specimens in our plate come quite up to the mark. The Pink was raised by Dr. Maclean, one of the most distinguished amateurs in England. It is described as "reddish purple, broad belt of color, very smooth in the edge, large petal, medium-sized flower," and well deserves its name of *Beautiful.* The Picotee was raised by Mr. Kirtland. It is named the *Rev. H. Mathews*, and is what is called a rose-edged Picotee. It is distinct from another of the same class named Rev. *A.* Mathews. A writer in the *Florist* thinks the coincidence of names unfortunate; we think as much. It is, however, a beautiful flower, and will no doubt find its way among us. The color is white, petals large, edged with rose, smooth on the edge. It is a good and constant bloomer.

DESIGNS IN RURAL ARCHITECTURE, No. IX.—AN OPEN PAVILION.

BY GEORGE E. HARNEY, LYNN, MASS.

We offer at the present time another of the series of designs for simple outbuildings for the adornment of country places.

Our series thus far has included two summer-houses for shady corners of the lawn, an observatory for the rocky bluff, and a pump-house for the yard. We now give a view of an open pavilion, appropriate for a high, prominent situation commanding extensive views, such, for instance, as many of the estates on the banks of the Hudson afford. It serves here the same purpose as the observatory, though the latter—as the design in the October number of the Horticulturist—is more suited to a rocky eminence hedged in by evergreens and other picturesque trees, while the former, being of a more open, sunny character, would look best on the verge of a graceful sweep of lawn, in the midst of *beautiful* rather than *picturesque* scenery.

The pavilion is octagonal in form, measures twenty feet across, and the interior is surrounded by seats. The roof is of the *ogee* form, and might be surmounted by a vane, a useful as well as an ornamental feature.

There being no intricate detail work, the construction of this structure is very simple, and it can be executed by any ordinary carpenter at a small expense.

RUBUS LACINIATUS.—(JAGGED-LEAVED BLACKBERRY.)

BY WILLIAM LAWTON, NEW ROCHELLE, N. Y.

If this beautiful plant is to be extensively cultivated in our fruit-gardens, and our market supplied with its berries, or even if confined to the grounds of the amateur, it should have some short and appropriate name, expressive, if possible, of its quality. The flavor is peculiar: it partakes of the Raspberry enough to make a marked difference from any of our Blackberries. It is so sweet as to be almost mawkish to some palates, while others are much pleased with this very peculiarity; and I think it may properly be called the Honey Berry, or Honey Blackberry. At all events, it will occupy a portion of the grounds of every discriminating amateur, in consequence of its several desirable qualities, and will be no less valued for the beauty and permanency of its foliage than its abundant yield of delicious fruit; for hedgerows it will present an impassable barrier, to be kept up at a small expense, and giving rich returns for all the labor bestowed upon it. When firmly rooted, each plant may be considered as permanent as a grape-vine; no suckers are thrown out from the roots; but, during the summer, long, trailing shoots are produced from the stock near the ground, and these the ensuing summer bear an abundant crop; after which the sap is no longer elaborated, its branches become desiccated, and may be removed in the autumn or spring.

Considering that the plant is as permanent as any tree or vine, I should recommend the same preparation of the ground as for favorite grapes or most valued trees. My plants were, fortunately, set in garden ground trenched more than two feet deep, and highly manured. They can be trained upon a trellis or an espalier, or left to run upon the ground, or upon a stone or other fence adapted to the purpose. The growth of a single season, when the plant is three or four years old, is sometimes fifteen feet or more. These shoots are like a large whip-lash, tapering to the end, with many laterals. In regard to the best method of propagating this plant, nature points out one that can be readily practiced: cover the ends of the trailing branches with two or three inches of earth, after they have about finished their growth, say at midsummer, and they will be found firmly rooted in the autumn; the main branch may be separated and spread upon the trellis, or regulated in any way for fruiting. Virgil refers to the Blackberry as a trailing shrub teaching the art of layering. Where a few plants only are required, this beautiful suggestion of nature should be followed, as the most convenient and inexpensive. But the triumph of art for extensive cultivation is by root cuttings; these can be placed in a hot-bed early in the spring, and placed in pots or the open ground as soon as a stem and leaves are fairly formed. I do not think it can be propagated by cuttings as practiced with so many plants, but hope to be far better informed in regard to the nature and value of this "Honey Blackberry" at the close of another season, and shall be happy to communicate to my friend Mead all I can learn upon the subject, or to take instruction from him, if he will visit my grounds at the proper season.

From the peculiar flavor of the fruit, I should be induced to think this Blackberry is an accidental cross with a Raspberry. I hardly think it can be of French origin, but I am trying to search the matter out, and will let you know the result.

[Do so; we will try to help you, and let you know our mode of growing the plant.—Ed.]

GRAFTING THE GRAPE VINE.

BY C. W. GRANT, IONA ISLAND, N. Y.

During the past twelve years my statements of the success or failure of attempts to graft the vine have appeared in the horticultural journals, but the precise conditions of success have not yet been clearly pointed out. A few operators have been so generally successful that they consider failure the rare exception to the rule; but the instances of general or entire failure have been far more numerous.

To state the conditions of success in brief, I would say, the stock and scion must be brought together under circumstances favorable to vegetation, with the stock actively disposed to form granulations, and the scion disposed to the formation of callus at the same time. The bud of the scion will soon shoot forth, and if not protected from the hot sun or drying wind, will probably soon perish. After the inosculation of callus and granulation, vegetation goes on in the rapid formation of shoot for a considerable time before a union takes place, during which time the shoot has not much power of endurance, and can not be left unguarded with safety. Even at the end of a season, and after vigorous growth has been made, the union is often slight. The motion of the watery sap of the vine (for sap we will call it) is often very energetic, and pushes forth its shoots before it carries enough nutriment to add to its incipient root, or form granulations on a mutilated part.

If, under these circumstances, the operation is well performed, the bleeding will go on through the scion, which will shoot, and appear to grow for a season, and the new operator will entertain no fear as to success; and if the season is warm and dry, and the stock and graft are both in perfect condition, there is some ground for hope, in proportion to latitude and climate. The operation which will succeed at Cincinnati will fail at Cleveland, in the hands of the same operator. If the season should be cold or rainy, the water will continue to flow, and no granulations form. To obviate this, the operation is deferred until the season is advanced, and shoots have put forth to the length of three or four inches. The scion for this purpose must be kept back, so that the bud is swelling, but not pushing. If the conditions already named are satisfied, and if the stocks are good healthy Isabellas or Catawbas, the operation will generally succeed; but the further north, the more advanced must be the shoot, often to the time of inflorescence.

The conditions favorable to success are fine healthy stocks of Catawba, Clinton, or Isabella, &c., with vegetation so far advanced that cambium is beginning to form, or at least ready to form, so that bleeding will scarcely occur, or will cease soon after the operation has been performed. It is not that the bleeding in itself defeats the operation, unless it should be very long continued as well as very profuse, but because while it continues no granulations for uniting with the scion will put forth. It is true that continued bleeding will either prevent or destroy the callosity of the scion. Therefore I have said the action of each must be ready to meet the other. The stock must be active, and the scion, although kept back in a cool place, must at

least be excitable; and the shock of transfer to a growing temperature must not be great. One bud is enough for each scion; and if the stock is pretty large, or an inch or more in diameter, two may be used.

The soil should be removed to sufficient depth to enable the operator to cut the stock below the collar and surface roots, if such have been suffered to form, so that in the first place the difficulty from the formation of shoots from the stock will be chiefly avoided, which is important, as the disposition to it will be very active, causing the failure of the operation. In the second place, it should be so low that the graft may send out its own roots, and thus insure permanence to the new vine, which will otherwise be of doubtful duration. Much more accuracy of fitting is required than for the apple or pear, and the usual injunction to have a sharp knife skillfully used is here particularly in place.

The work should be so well done that tying will not be required for the aptation of the parts, and that there shall be no springing apart after the ligature (which should be of bass) has decayed; still the tying should be stringently done, and so as to remain in full force for several weeks, as the union will not take place without strong and continued pressure. Under some circumstances, a young, healthy, well-planted vineyard may be advantageously converted into one of another variety, and one year of time gained by the operation; but plants on their own roots would be far preferable; and although it is one of the oldest operations that is accurately described by writers on the vine, it is but little resorted to by skillful vineyardists, not having been found advantageous.

The utmost advantage promised is small compared with that certainty obtainable on trees like the Apple and Pear, which require a long period to bring them into full heading. A thrifty Apple tree of twenty or thirty years' age, of undesirable variety, may, by grafting, be transformed into one of the kind desired within six years, and the new head, by this time, be able to bear a half crop, or from two to four barrels. A young tree from the nursery would require more than twice this time. The old tree would almost immediately give some good fruit, better in quality than could be obtained from a young tree under five years at least. A well-planted vine, under good treatment, will give good specimens the second year, or even the first, and a delightful crop the third. From the fourth to the sixth, according to the system adopted, it may become well established and in full bearing, under such favorable circumstances of planting and culture as the greatest amount of care and expenditure could not give to an old vine, but without which, if all else has been successful, its produce will be unsatisfactory.

I have not spoken of grafting the branch above ground. A few words on that will suffice. It may be as readily done as below ground, and with nearly the same prospect of success, but can scarcely be hoped to be enduring, unless a new vine is made of it by layering, so that the utility of the art will be diminished, except in particular cases.

If the grafting is done below ground, no cementing is needed, and the cleft or splice mode may be chosen, according to convenience. The fitting is always supposed to be well done, and the fine, permeable soil somewhat compactly replaced, and the shading by no means omitted. Some stocks in the open air will form no granulations, and no operator will succeed with them. If there is great natural dissimilarity in the texture of the wood, the union will be reluctant. Delaware will join with Clinton so that close observation is needed to discover the junction. In the propagating-house no fear is ever entertained

as to the result; and it may be remarked, the scions that are well grown in the propagating-house will grow when those which are produced in the open air will fail. The perfection of the wood secures the result in one case, and want of it causes failure in the other. Imperfectly ripened wood from deficiency of climate, or numerous other causes, often defeats the operation. A frame and sash will, under good management, secure success in grafting the vine. It must be remembered that the vine has a repugnance to a union with a foreigner, even of the nearest affinity, and will make great efforts to do its "upper air" work with its own apparatus, rejecting, if possible, that which is thrust upon it. The young shoots, which will generally start in profusion, must be watched, and removed before they appear above ground, or at least at their first appearance. If their leaves are suffered to expand, the action is fatally turned from the graft.

For the amateur, an operation of skill and beauty, and, withal, to test his dexterity and skill, may be performed in the summer—the last of June or beginning of July. A piece from a fine healthy cane of last season is taken, on which a shoot of short-jointed wood of the current year is growing, perhaps having made a length of eighteen inches. This shoot is cut back to one large leaf, which will have a well-developed bud at its base, and also a lateral, which must also be shortened to one leaf. The portion of old wood taken may extend from an inch and a quarter to an inch and a half above and below the current year's shoot. Half of the wood opposite the shoot is to be taken off by splitting in the middle. On the vine which is to receive this, have a cane of last season selected of equal size, and from which a piece carrying a shoot is to be removed to receive that already prepared. Accuracy of fitting, as well as rapidity of performance, is required to insure success. The piece must be firmly bound to its place by slips of bass. It must then be surrounded with moss, securely and neatly tied, which is to be kept moist for a few days, until union has taken place. It must also be shaded by a surrounding of paper, secured by tying above and below.

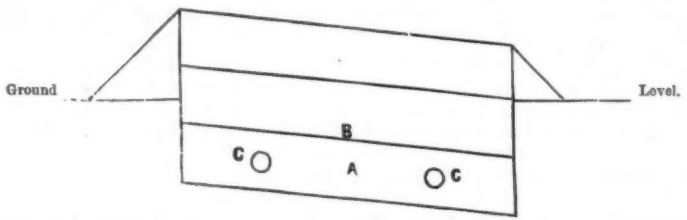
The cane is now to be cut off immediately above the first shoot above that on which the operation has been performed, and the shoot above shortened to two or three leaves. This shoot is to be entirely removed after the graft has begun to grow strongly. The opposite dangers to be guarded against are, first, attempting it too early, and before the new shoot has sufficiently advanced in the formation of wood and development of buds; for next season's buds are called upon to do the growing; second, to avoid dangers from immaturity of wood by lateness and consequent weakness at the end of the season. Budding may be performed successfully, so far as growing of the bud is concerned, but is an operation of no value except to the curious.

Grafting of the vine is much less extensively applicable with advantage than the grafting of trees, from other causes than those mentioned. The stocks chosen are often unsuitable; if of the wild vine, for want of similarity of structure. One of fine texture, like the Delaware, will form a lasting and happy union with one that is coarse and dissimilar. One that has lost health and vigor will not have it restored by grafting, and one that has been badly planted will suffer from the defect much more decidedly than before; and in such cases, when the ground is already occupied by hungry roots, the remedy by layering, which is easily applicable when young stocks are used, is inadmissible, because the first possessor will keep it filled with its own roots, despite their frequent removal. Grafting an old vine is, under the most favorable circum-

stances, but a temporary expedient, which will, after all, be not fully satisfactory; and the same care and skill, if expended upon a well-chosen new vine, will not only build up a new status which will be perpetual, but will yield by layers judiciously taken a remuneration for the past and revenue for the future. Albeit, I do not advise the taking of layers from choice fruiting vines; in the first place, for a reason of my own, which I will not divulge; and in the second, because it will take proportionately from its productiveness, and much more than proportionately from its size and beauty, as well as from the quality of the fruit.

Just as I am about to conclude, the HORTICULTURIST, with the communication from El Medico, comes before me with his long chapter of failures, in answer to which I am able to add very little. I have for many years been conversant with the "old German" vineyardist of whom he speaks, and have repeatedly witnessed his success and that of his Cincinnati neighbors in grafting. To have the scions of *well-ripened*, but not gross wood, is a point indispensable to success which I have omitted to notice; and wood that has been well grown in a house is greatly to be preferred, as it is for all propagating purposes. I hope these hints will furnish El Medico with suggestions of all the important conditions of success, as well as dangers to be avoided.

[There, El Medico, you have the philosophy of grafting the grape. If you and others master the principles upon which success depends, the application of the different modes of performing the operation becomes greatly simplified. Let us know how you like it, and whether you would like to have the *modus operandi* illustrated with cuts. We take it for granted that you, in this matter, represent a large class of our readers. You will also find something to your purpose in Mr. Adair's article. The Doctor, we are glad to see, has adopted our word "vineyardist." Though not in the dictionaries yet, it has the merit of being regular in its formation, and is concise and expressive.—ED.]

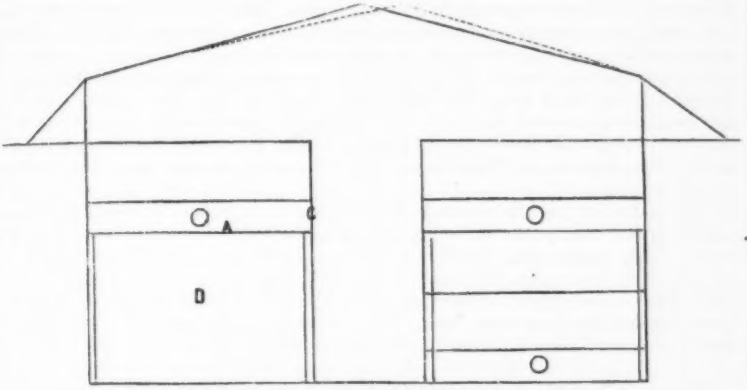


a Heating chamber. *b* Slate or tile bottom. *c c* Hot water pipes.

HOT WATER BEDS.

BY BROOKLYN.

As the season for these approaches, I beg to suggest the use of water ones to gardeners. Dung hot beds are troublesome, especially those required in action for a length of time, as fruiting beds for melons, cucumbers, tomatoes,



a Board bottom supported upon joist uprights and cross pieces.

&c. I think the double arrangement best, as it possesses the advantage of being workable in all kinds of weather. The spaces, *d*, of course need not be excavated unless desired; but I think it best to do so; they can be used for growing mushrooms, sea kale, rhubarb, or asparagus, without bottom heat; or, by running the return pipe around again, can be turned into forcing beds for the same.

There should be slides in the edge of the heating chamber *c*, to open at night or in bad weather, to equalize the top and bottom heat.

[The above suggestion is a good one. We have put up and are putting up hot-beds on about the same principle, the difference consisting chiefly in the mode of heating; and in this respect the difference is small. To those who can afford the first cost, the arrangement is a good one, and will prove satisfactory. To others, we recommend the excellent plan of making hot-beds described elsewhere by a "Jersey Market Gardener."—ED.]

MORE ABOUT MR. LAWRENCE'S ORCHARD HOUSE.

BY DR. GEO. PEPPER NORRIS, WILMINGTON, DEL.

IN the August HORTICULTURIST I find I have written, in describing a visit to Mr. Lawrence's houses, thus: "Here are to be seen peach trees growing in wire baskets, surrounded with moss, and trained in every imaginable shape." To this assertion I find a "Close Observer" has taken exception. I certainly did see peach trees growing in wire baskets, surrounded by moss, and that there should be any thing extraordinary in that statement I can not imagine: the trees I supposed every one would take for granted were grown in the earth in the baskets, and only surrounded by moss on the tops as a mulch. Why a peach or plum tree can not be as well grown in a wire basket of suitable dimensions, with a certain quantity of earth, as in an eleven-inch pot, I can not un-

derstand. I have no interest in Mr. Lawrence or Mr. Lawrence's gardener, nor do I know that I shall ever meet again with either. The description was furnished for the purpose of showing how much can be done with pot trees, in which I am particularly interested. I did not examine Mr. Chamberlain's vine baskets *closely*, for I know that a pot vine can be as well fruited in a wire basket as in an eleven-inch pot, and why Mr. Chamberlain should find it necessary to tie on grapes to his baskets, (as your writer intimates and asserts he has done,) I do not know. That he may have done so I do not deny, but I do assert that it was not necessary for him to have resorted to any such means, as a strong pot vine can be successfully fruited in a basket. I have never been distinguished for going about the world half asleep, as your correspondent would have your readers believe, nor has my veracity ever been before questioned. Others, fortunately, saw the turtles and frogs, so that your correspondent's sneers in relation to them are unnoticed. Mr. Chamberlain's success as a gardener has made many jealous of him; it is possible that the originator of the "Second Bar+num" may belong to this group.

[We are glad to hear you speak again, Doctor. We do not understand "A Close Observer" as questioning your veracity; that we should not have permitted; but he does seem to think that your eyes were not wide open. The case, as we understand it, from "A Close Observer's" article, and the one copied into the *Cincinnatus*, stands thus: Mr. Chamberlain is said to be able to grow Grapes, Peaches, Plums, &c., in a *cup of charcoal* surrounded with moss, (not in a basket of *earth* surrounded with moss, as you put it,) better than they can be grown in the ordinary way. We know that plants will grow in pure charcoal, but that fine grapes, &c., can be matured in a *small cup* filled with charcoal, sand, and water, is another thing. "A Close Observer" says it is not done. We hope Mr. Chamberlain will be able to show that he is not understood, and that no deception has been practiced: we can really perceive no motive for it.—Ed.]

CRANBERRY CULTURE.

BY F. TROWBRIDGE, NEW HAVEN.

The cultivation of the Cranberry is now engaging the attention of many horticulturists; and, considering the amount of labor required, and the sure and certain market for it, which can never be supplied, as it is almost the only article of fruit that can safely be exported or can be taken on long sea-voyages, it will always prove a profitable crop. The cultivation of the Cranberry possesses an advantage also in the fact that it can be raised on land that is of but little value. It is, however, necessary, in order to be perfectly successful, to have the ground well prepared before planting out. The best land for Cranberries is a moist, sandy loam, with a wet stratum twelve inches from the surface, or near some brook or stream. If quite wet, it should be drained, and the drain so made, if convenient, as to flood the ground when required, that the water can cover the plants in winter and until late enough in the spring to prevent the frost killing the blossoms. If very dry when the fruit is setting,

the water should be let on and off; and again, also in August or first of September, if necessary. The above are all the advantages of flooding them.

As the plant lives on air and water, it will do well under such treatment. If the land can not be drained, and has a peat, muck, or shaky bottom, it should, if possible, be covered with two to four inches of sand, (sea-side sand is best,) which, being open and porous, admits water freely, and helps retain it in the soil below. The plants, when set out, should always be below the sand four to five inches under ground. Shallow planting has been the cause of most of the failures which have occurred. The sand also tends to prevent the grass and weeds from growing rank, and the plants are easier kept clear, which is all the care needed in their cultivation.

The process of raising them from seed is very slow, and is not advisable. The vines are sometimes gathered, cut up into pieces, and sowed in rows as you would peas. Another plan is to take up sods and bunches of roots; but in this way foul weeds, grass, etc., are taken up with them. The best way is to plant single roots deep in the ground. The stem will also take root, and give a strong growth to the plant, and much larger fruit. For field-planting, the plants should be set about two feet apart in the rows, and two feet between the rows; it will then take about 10,000 plants to the acre. In gardens and small plots, they can be put out from one foot to eighteen inches apart, and the ground will be much sooner covered.

In putting them up, care is taken to select bearing plants, (the largest, rankest plants, with green leaves, are usually barren; the bearing plants are more slender, with the leaf somewhat brown;) these are tied in bunches of one hundred each, with moss, and packed in moss for transportation. They can be sent in this way to any part of the world. They can also be forwarded at any time of the year, as they are very tenacious of life. If in the winter, and they get frozen in the moss, cover the roots in soil until thawed. At the small price for which they are now sold, it is more desirable to purchase the plants than attempt to gather them. The best variety for all soils, except very wet ones, is the common Bell variety; they are earlier than any other kind, and will thrive in tolerably dry soil with care. They are sold by some dealers for upland. A strictly upland variety has not been found, unless it be the small Newfoundland variety, which at present can not be procured in quantity. The Cherry variety will only grow on very wet land; it is larger, but later, and not as good a bearer. From one hundred and fifty to two hundred bushels have usually been gathered from an acre. If the above is of any use to those who wish to grow the fruit, you may make such use of it as you please.

RURAL SOCIETIES—THEIR RISE, PROGRESS, AND FAILURE.

BY R. ROBINSON SCOTT, PHILADELPHIA.

Your long experience, friend editor, in the management and organization of Horticultural Societies, must have enabled you to judge of the utility of the same, as now generally conducted, and must have convinced you that in many instances they fail to meet the wants of the age, and are wholly inadequate to the purposes for which they were originally called into existence. I have noted during the past two exhibition seasons a growing conviction

that there are fundamental errors in their management, as well as in the means chosen to carry out their professed purpose. Let us canvass this matter fairly and quietly, and discover, if possible, the causes for the falling off in many once influential societies.

To do this judiciously, we must refer to the societies themselves, to their former flourishing condition and their present comparatively feeble state. We must trace the gradual development of dissatisfaction among the members, and discuss the acts of their officers; but you will demur to such a subject being introduced into the columns of the *courteous* HORTICULTURIST, and that, too, by one who is well known as ignoring *courtesy* when *facts* are wanted.

Well, we can not be permitted to impeach the respectable officers of these societies, nor, indeed, be allowed to speak the facts as to the position of the societies themselves, unless in so indirect a manner as not to be offensive. Let us try.

Society Number One. An agricultural club, seventy-five years established, incorporated by charter, meets in the second largest city of the Northern States, has a library and reading room, a president, two vice presidents, recording and corresponding secretaries, a treasurer, and librarian. Annual dues, $3. Holds monthly stated meetings, and occasionally an annual exhibition. The treasury is now without funds, and the society involved in debt, growing out of its recent attempt to get up an exhibition. The deficit is being collected by voluntary contributions, and is almost made up. What has this old society done for the promotion of agriculture, practical and scientific? I shall leave this question to you or your correspondents.

Society Number Two. A horticultural society, thirty-three years established, incorporated by charter. Has a valuable library, and had once a funded property of some twenty thousand dollars, latterly reduced to $13,000, which is now, I believe, unavailable. Has a president, four vice presidents, two secretaries, a treasurer, three professors, and a long list of committees. Formerly held monthly stated meetings, and displays of plants, fruits, and esculents, as well as a grand annual exhibition lasting for three days. Now the number of displays is reduced to eight, and the annual one discontinued. Annual member's fee, $3. Life membership, $25. Located in the second largest city of the Northern States. Annually becoming less efficient and poorer.

Society Number Three. A horticultural society of the empire city, incorporated some thirty years ago by charter, *had* a library, holds monthly stated meetings and displays, as well as an annual exhibition. Annual fee, $3. Of this society you know more than I do.

Society Number Four. An influential horticultural society, established in the capital of New England, has a valuable property, a hall, and other real estate; holds creditable monthly displays and a grand annual exhibition, awards valuable premiums, and is, in truth, an efficient society, notwithstanding the periodical bickerings and jealousies among its prominent members, generally resulting from disputes about premiums, or deceptions practiced upon the committees to obtain such. Now, Mr. Editor, you see the scope proposed in reference to our Rural Societies. When the positions of these organizations shall have been stated, we shall have something to say as to a remedy. Are you and your readers ready for the question?

[We think much good might be done by pointing out wherein these societies

have failed, and the *causes* of such failure, in order that these causes may be avoided for the future by them and others. This will naturally lead you to analyze the principles by which they have been governed, and afford you an opportunity of discussing their soundness. This will tax your acuteness and judgment to such a degree that you will have little desire to inquire into personal motives. Your position will be that of a judge rather than a lawyer, and you will therefore not be unmindful of the gravity pertaining to such a position. As we have had no inconsiderable experience in such matters, we will advise with you from time to time, if that should be necessary. Let us all be animated by a desire to do *good;* with such a spirit we can see no objection to treating this matter. In regard to No. 3, you should have finished, as you began, with the *past* tense; but we shall have something to say when No. 3 comes fairly up. You will probably have a No. 5 before you get through. It is a lamentable fact that Horticultural Societies, at least those in our large cities, have not accomplished satisfactorily the objects of their formation, and are far from occupying that high position which gives dignity and authority to their proceedings. We have often expressed the conviction, that a Horticultural Society which simply holds a couple of public exhibitions annually, has left undone the most important part of its duties. The subject, we know too well, is beset with difficulties, but we are far from regarding them as insurmountable. It remains to be seen whether our correspondent can suggest "a better way."—Ed.]

EDITOR'S TABLE.

To Contributors and others.

Communications, Letters, Catalogues, Periodicals, &c., intended for the perusal of the Editor, and packages by Express, should be directed to the care of C. M. Saxton, 25 Park Row, New York. Exchanges should be addressed to "THE HORTICULTURIST."

OVERWORKED.—That word describes our feelings precisely. We are almost used up, but with an unabated desire to go ahead, and go ahead we shall as long as there is any thing left of us. Our present number may be a day or two late, in consequence of not being able to do any thing for it till the January number was out of the way; but we shall have soon recovered from the effects of the fire, and go on as usual. Some of our readers have, no doubt, had their patience tried a little, but the nature and extent of our misfortune will no doubt be an ample apology for our short and long comings. We have received many letters abounding in the warmest sympathy, for which we desire to return our hearty acknowledgments. Some of our correspondents whose letters were destroyed we have heard from; others not. One letter about *Peach glands*, another about *Lobelias*, (from a postmaster, we think,) another about a cheap *Grapery*, another about the change of color in plants, and others which we can not remember, we should like to have again. They were answered in the burned number, but we can not repeat the answers without the questions before us. Will you not oblige us by writing again?

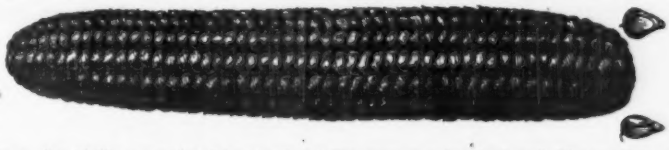
ERRATA.—We find there are some errors in our last number; the wonder is that there are not more. In Mr. Downing's article, p. 40, second line from bottom, "white" should be "while," to read thus: "The young wood of Carolina is reddish, while the New York Pippin is very dark," etc. On p. 41, in synonyms of Nickajack, "Chaltram" should be *Chatham*, and "Cheatan" should be *Cheataw*. In B.'s letter on boilers, p. 53, line 11th from top, for "I will prove," read "I could prove," etc. In line 12th from top, for "honest truth," read "known truth." In line 14th from top, we presume after the word "altogether," add, "and we burned nearly double that quantity." These words were not in the MS., but B. considers them necessary, and they would seem to be so.

YALE COLLEGE LECTURES.—These lectures, we regret to learn, have been postponed in consequence of the disturbed state of the country. The regular scientific course on Agriculture, however, will be continued as usual; the lectures are open to the public. They are designed to cover the whole ground of the relations of science and agriculture. The fee is $10.

MOTTIER'S CATAWBA WINE.—We have received some samples of this wine. It is the pure, unadulterated juice of the grape, and comes up to our idea of what a first-class wine should be. It is nourishing and refreshing, without being intoxicating, and is superior, in our estimation, to the great mass of Rhine wines imported into this country. It has a fruity taste which is peculiarly palatable to persons accustomed to drinking dry wines. Continue to make such wine, Mr. Mottier.

OUR BINDER.—In noticing our "artists" last month, we meant to have alluded also to our binder, who deserves a good word at our hands. He helped us very materially last month. Besides being one of the best of binders, he is always prompt, quick, and willing. We should be sorry to part with Mr. Brockett.

BRAZILIAN POP CORN.—We have received from M. W. Philips, Esq., of Edwards, Miss., an ear of corn with the above name, which is the prettiest thing in its way that we have ever seen. We give a drawing of it. The color is red. The form of the ear and grain can be seen by the engraving. Mr. Philips says that "*twenty-nine* stalks gave two hundred and fifty ears," in an excessively dry season. One stalk bore *twenty-five* ears, and another *twenty*. He thinks it was injured by "suckering," the tendency this way being excessive. Now, Mr. Philips, be good enough to let us know where it came from, and "all about it."



NEW CALADIUMS.—We have just received from B. C. Townsend, Esq., specimens of two new varieties of these interesting plants. One is named *Caladium Troubetzkii*. The leaf is long and narrow; color, dark, velvety green, with the midrib of a dark crimson, prettily feathered; there are also a few crimson spots. It is very pretty. The other is named *Caladium Belleymei*. The leaf is large, about the shape and size of C. Chantinii; the color is an exceedingly delicate silvery white, the midrib and veins being dark green; the veins becoming numerous on the margin, and very delicate and hair-like. The margin is green, with a vein running parallel with it all round the leaf. At the junction of the petiole and midrib there is a blotch of the most delicate pink. This is one of the most beautiful and striking Caladiums that we have yet seen. They were both originated by Chantin.

ROOM PLANTS.—One of our correspondents, we remember, asked us to furnish an extended list of plants suitable for growing in rooms. He can make up a list from the following: Azalea, Fuchsia, Primula Sinensis, Cuphea, Bouvardia, Chorozema, Geranium, Heliotropium, Roses, (China, Tea, and Bourbon,) Coronilla, Daphne, Cyclamen, Gardenia, Cypripedium, Hoya, Alonsoa, Begonia, Aloe, Ardesia, Calla, Viburnum, (Laurustinus,) Stevia, Fabiana, Lachenalia, Maurandya, Mahernia, Mimulus, Cacti, (the whole tribe,) Babiana, Sparaxis, Ixia, Myrtus, Ornithogalum, Olea fragrans, Myosotis, Pentas carnea, Pittosporum, Salvia, Euphorbia, Tremandra, Petunia, Verbena, Passiflora cœrulea, Camellia, (when you become *au fait*,) Lemon and Orange, Deutzia, Lycopodium, Hyacinth, Crocus, Narcissus, Weigela; but we think we have gone far enough. From the species and varieties of the above you can select more than you will find room for. In this connection, read our article on *Room Plants* in last volume, p. 409; you will find it to the purpose. Read, also, our article on *Annuals in Pots*, p. 361, same volume. What is there said will apply to rooms. We advise you and all beginners to start with a small collection of plants.

WHALE OIL SOAP.—A subscriber requests to be informed where whale oil soap can be procured, and at what price. It is kept for sale by most seedsmen, and also by the principal druggists, and at some groceries. The price is eight cents per pound.

DOUBLE ZINNIAS.—We have to thank Mr. Bliss, of Springfield, Mass., for a paper of the new Double Zinnias, which we shall grow with great care. If half that is said of them be true, they

will become popular flowers, as the single ones already are. In the same parcel was a paper of "extra superb" Pansy seed, one of our favorites.

NEW TOMATO.—We are indebted to Mr. Bridgeman, New York, for a paper of tomato seed, labeled "Algiers Red Mammoth," which we hope will prove good.

THE PEACH CROP.—We already begin to hear of the destruction of the buds on peach trees about New York. On the 12th of January the thermometer in some places stood 20° below zero. Mr. Downing writes us that the buds are destroyed around Newburgh, and that will probably prove to be the case in many parts of New Jersey.

PROGRESSIVE GARDENERS' SOCIETY OF PHILADELPHIA.—The following officers have been elected for 1861: *President*, John Pollock. *Vice President*, James Eadie. *Treasurer*, H. A. Dreer. *Secretary*, (not yet elected.) The printed proceedings alluded to last month have been received. We are glad to see them in permanent form, for they are well worthy of being preserved, and will be read with interest by all engaged in horticultural pursuits. The price is 25 cents.

CATALOGUES OF MM. BLONDEAU-DEJUSSIEU AND MASSON.—In France, where the vineyard and its products have for many years been considered of primary importance, we would naturally expect to find not only the details of every branch of the business generally and thoroughly understood, but so systematized that new forms of the business would rarely be developed. In this, it would seem, we are mistaken; a class of dealers are there wanted now, which are undoubtedly called for in the early stages of any business, in regard to which full information for its entire management is not always possessed by those who wish to engage in it. We note the fact as one of the signs of the times; we are not unmindful, however, of the existence of such firms as Vilmorin and others. In France, the number of names of vines (local and general) is formidable, all of them having advocates of their merits, while, in reality, the number of the really valuable kinds is not large, and their characteristics are well understood by the intelligent, as well as their special adaptation to particular soils and localities. These facts are open to all who are disposed to investigate them; but there are many who will not take the trouble, choosing rather to be led (or rather misled) by the uninformed and untrustworthy.

For this state of things, Messrs. Blondeau-Dejussieu and Masson propose a remedy, a brief outline of which is all that we can give. They have published two catalogues, in which they estimate the value of the leading varieties, giving their synonyms, (which are very numerous,) with the climate and soil to which each is adapted, and all other information which the purchaser of plants for a vineyard is supposed to require. The information is precise, and valuable to the vineyardists (if we may coin a word) of France, and to all who wish to become so; and the facilities which they propose to afford appear to be worthy of consideration even in our own country. The persons whose names are here given are well known in France, and we presume are distinguished for their knowledge, integrity, and business capacity, all of which qualifications are requisite to fit them for their new occupation. Such a mission, well performed, would be a beneficent one for any country, even for ours at this moment; for the indications are unmistakable that ours is to be a great grape-growing country, and the work is already in progress on a scale by no means insignificant.

We understand that these gentlemen contemplate a similar mission for California. We think it remains to be proved that the foreign grape is the best adapted to that climate; and the experiment should be entered upon very cautiously by all concerned. In France they would have no such uncertainty to contend with, and it therefore behooves them to consider the matter seriously before they advance too far. Our California friends would also do well to give the subject a like serious consideration before embarking their capital too deeply. We need not say, however,

that we wish to all concerned the full measure of success which belongs to well-directed efforts. Experiment and investigate cautiously, and adopt only such facts as are well ascertained. One well-ascertained fact is worth many plausible inferences. In view of past experience with foreign vines, we drop a word of caution to our friends in all parts of the country; their success is not only more than doubtful, but at present they are unneeded: in a few years we shall have numbers of native grapes that will meet all our requirements.

A List of Fruit for New York.—A committee was recently appointed by the American Institute to prepare a list of fruit adapted to the vicinity of New York. They first decided to adopt only a limited number of each kind; next, to pass by any kind to which any member of the committee objected. Thus, when the Newton Pippin was proposed, three members objected to it, and no more was said about it. The objection was not to the quality; for the committee were probably all agreed that it is the best of all apples in this respect; but, that it did not "do well" with them, and, consequently, was not profitable to grow for market, this being the purpose for which the committee were preparing the list. The adoption of this rule will account for the omission of some fine fruits. Others, equally as good as those adopted, would have found a place in the list if it had been larger. The committee, however, seem to have been satisfied in making out a list of the limited number, embracing reliable varieties for the purpose in view. The report here follows:

"The committee appointed to make a selection of fruits from the catalogues of the nurserymen, to recommend as the most suitable for cultivation in the vicinity of New York, make the following report:

"That in preparing the lists here presented, the committee adopted the rule of rejecting all kinds in regard to which their experience was not uniform, both as to quality and productiveness.

"The chief object in making this selection has been to guard the inexperienced cultivator against the errors so often made when the lists of the nurserymen are the only guide. Many young orchardists buy every thing recommended in the fruit books and catalogues, and find, after years of careful cultivation, that a large portion of their trees are worthless, and the fruit of the remainder of but little value. Some fruits of the first consideration in one locality are worthless in another, and some trees are productive in one soil and barren in another.

"This frequently involves the necessity of grafting, causing years of delay and labor without reward, until in many cases patience becomes exhausted. As an instance, the Doyenné pear, in Western New York, and some of the western states, is probably without a superior, while here, and on the sea-coast generally, it is only an incumbrance to the ground. The same may be said of many other though less known varieties.

"In making this selection, we do not wish to be understood to discourage amateurs from planting any, or even all, the old varieties that the catalogues pronounce good, neither do we wish to discourage efforts to originate new kinds; but we do say from our own experience that, in this locality, we believe the list here recommended will prove satisfactory—that all these sorts, with proper cultivation, will be productive, and that none will require re-grafting.

"Many persons will probably think, on reading this report, that better sorts have been omitted, and some of the committee will concur in this opinion; but they beg leave to say that while they have left out such varieties of apples as the Northern Spy, the Swaar, Pennock's Red, Newtown Pippin, Vandevere, Pearmain, Smith's Beauty of Newark, Hubbardston's Nonsuch, &c., &c., all could not be included without making too long a list, and that some of them are only superior in their native localities. Some have been proved inferior here, and others have not yet been proved at all. The same may be said also of the lists of pears, plums, and other fruits.

"*Summer Apples.*—Early Bough, Early Harvest, American Summer Pearmain, Summer Rose.

"*Autumn.*—Autumn Bough, Gravenstein, Hawley, Fall Pippin, Porter, Jersey Sweeting.

"*Winter.*—Baldwin, Rhode Island Greening, Jonathan, Monmouth Pippin, Spitzenberg, (Esopus,) Tallman's Sweeting, King of Tompkins County, Boston Russet.

"*Summer Pears.*—Doyenné d'Eté, Dearborn's Seedling, Beurré Giffard, Rostiezer, Tyson.

"*Autumn.*—Bartlett, Seckel, Beurré d'Anjou, Beurré Superfin, Doyenné Boussock, Duchesse d'Angoulême, (on Quince,) Flemish Beauty, Fondante d'Automne, Sheldon, Urbaniste.

"*Winter.*—Beurré Gris d'Hiver Nouveau, Beurré Diel, Lawrence, Vicar of Winkfield.

"*Cherries.*—Belle de Choisy, Bigarreau, or Yellow Spanish, Black Eagle, Downer's Late Red, Early Purple Guigne, Elton, Black Tartarian, Governor Wood.

"*Plums.*—Green Gage, Coe's Golden Drop, Imperial Gage, Washington or Bolmar, Smith's Orleans, Jefferson.

"*Peaches.*—Crawford's Early, Crawford's Late, Early York, (Large,) Bergen's Yellow, George IV., Oldmixon Free, Morris White.

"*Clings.*—Heath, Large White, Oldmixon.

"*Nectarines.*—Downton, Stanwick, Early Newington.

"*Apricots.*—Dubois' Golden, (American variety,) Peach or Moorpark.

"*Grapes.*—Delaware, Diana, Concord, Union Village, Hartford Prolific.

"*Quinces.*—Orange, Rae's Seedling, Portugal.

"*Currants.*—Large Red Dutch, Versailles, Victoria, Large White Province, White Dutch, Black Naples.

"*Gooseberries.*—Downing's Seedling, Houghton's Seedling, (hardy American varieties, and free from mildew.)

"*Raspberries.*—Hornet, Franconia, Orange, Belle de Fontenay.

"*Strawberries.*—Triomphe de Gand, Bartlett, Wilson's Seedling, (acid,) Hooker's Seedling, (sweet,) Jenny Lind.

"*Blackberries.*—New Rochelle, (or Lawton,) Dorchester, Newman's Thornless."

BOOKS AND CATALOGUES RECEIVED.

Pomona Garden and Nursery Catalogue of Fruit and Ornamental Trees, Vines, and Plants, cultivated and for sale by William Parry, Cinnaminson, Burlington County, N. J. 1860 and 1861.

Catalogue of Fruit and Ornamental Trees, Shrubs, Plants, &c., cultivated at the Union Nurseries, Schenectady, N. Y., by C. Reagles & Son. 1861 and 1862.

Record of the Progressive Gardeners' Society of Philadelphia; being the first Annual Report, for 1860; embracing twelve Essays on important Horticultural Topics, with Discussions on the same. Also, the Record of the Organization of the Society, the Preliminary Meeting and Address, Rules and By-Laws, List of Officers, Members, &c. Philadelphia: Published by Authority of the Society, by R. Robinson Scott, Secretary, at 236 Chestnut Street. Price, 25 cents.

Spring Catalogue of Roses, Dahlias, and Bedding Out Plants, grown and for sale by Peter Henderson, Wayne Street, Jersey City. 1861. Agents, McIlvain & Young, Seedsmen, No. 9 John Street, New York.—We are surprised at the number of novelties in this catalogue, which the title gives no indication of.

J. M. Thorburn & Co.'s Descriptive Catalogue of Vegetables and Agricultural Seeds, &c. Garden, Field, Fruit, &c., Seeds. The largest collection to be found in the world, embracing every standard and improved variety. Also, tested novelties, both of domestic and some of foreign origin, that are suited to the climate of the United States. 1861.

Wholesale Catalogue or Trade List of Fruit and Ornamental Trees, Shrubs, Vines, Roses, &c., grown and for sale by Hatch & Co., at the Central Nurseries, Jackson, Miss. 1861.

Correspondence.

OCHRE POINT, Newport, January, 1861.

MR. EDITOR:—In answer to your article headed "A Second Barnum," I would wish to make a plain statement. Your "Close Observer," or Paul Pry, called late in the season, when we had disposed of all fruit, except a few withered pears, and a basket of grapes, which, once beautiful, had grown old, and was allowed gradually to go to decay. Finding, however, that it still preserved some remains of the beauty which had induced me to have it photographed, I had bound up a broken limb, and thought nothing more about it until I read the article, which I hope will, by attracting the notice of all lovers of progress, induce you and your friends to come and judge for yourselves. What has been done once can be done again. I have now a basket which has been two months in bloom, full of rich flowers. This coming season I shall send specimens of fruits and flowers produced in this way to the Horticultural Exhibition at New York. I have now new potatoes, tomatoes, radishes, and pineapples, all in perfect order, and I send you a sample. I am not a wit, like Mr. P., and can not answer him in his own coin. I have, however, read that the bodies found at Pompeii fell to pieces at the touch, and the fruit which had survived its time might well crumble into dust, if he handled it half as roughly as he has handled me.

I should not discuss this matter at all, but leave my vindication to the plants, which will give him his best answer next spring, were it not that his strictures are an insult to hundreds of people who have seen what he says can not be done. The *Journal of Commerce*, September 3, 1860, says: "Here one can easily fancy he is enjoying tropical life, for he has the heat of the tropics for the entire year, and their fruits, such as pineapples, apricots, figs, bananas, together with a great abundance of fruits of more northern climes, such as strawberries, pears, peaches, cherries, &c. All these fruits are *growing* in pots." And again he says: "Some of the trees grow hanging in baskets, which I believe was original with Mr. Alfred Chamberlain." I could cite hundreds of other witnesses, but, sir, in a few months I shall produce the fruit itself, and will agree to furnish you a basket of grapes in full bloom, in return for the responsible name of this horticultural St. Thomas.

SECOND BARNUM.

[We are very glad to have this response from Mr. Chamberlain. An explanation was due alike to himself and his friends. It will be seen elsewhere that "A Close Observer" has also brought out Dr. Norris, who insists upon his former statements. The explanation of Mr. Chamberlain sufficiently accounts for the falling of the grapes; it also leads us to the conclusion that the fruit was *natural*. "A Close Observer" says the berry that fell was "smashed to atoms;" from which the impression was produced that the fruit was *artificial*, since no natural fruit could be reduced to an *atomic* condition in any stage of maturity. If this was not intended, then the expression was an unfortunate one. Again, Dr. Norris says, the vines and trees are grown in pots and baskets filled with *earth*; "A Close Observer" says, in tin cups, filled with charcoal, sand, and water, surrounded with moss. We gather from Mr. Chamberlain's note that he grows them in the mode described by Dr. Norris. We should like to have these discrepances reconciled, and trust that Mr. C. will undertake the task. He has shown a commendable degree of self-command under pretty sharp handling, and we hope he will take up the pen again. We hope, also, that "A Close Observer" will be willing to correct any errors into which he may have fallen. At the proper season we will accept Mr. Chamberlain's invitation, and see these things with our own eyes. He would not be likely to invite us to his place unless he felt sure of his position. The samples alluded to have not yet come to hand.—The last word had not been penned five minutes, when the box was placed on our table. We find it to contain *Strawberries*, (not large, but ripe, with a good flavor,) *Tomatoes*, (thoroughly ripe, and good,) *Radishes*, (nice and crisp,)

Mustard, (with a pungency just about right,) a *Cucumber*, (nearly a foot long, but will be less after we get home to-night,) *Potatoes*, (of good size and smooth skin; but we shall know more of them when we get them in *our* pot,) and a handsome *Pineapple*, all grown in pots; but grown in any way, they would do Mr. Chamberlain great credit as a skillful gardener. As we look at this fine lot of fruits and vegetables, so rare at this season of the year, and consider how they have been grown, we feel like posting off to Newport at once. We desire to return Mr. C. our best thanks.—ED.]

January 22, 1861.

MR. EDITOR:—Your suggestion about testing different boilers in last HORTICULTURIST, is just the thing. Let it be done, and we shall get at something like facts, and facts are wanted. I have a *tubular* boiler, which pleases me well; the size is small, but it has great power. My old gardener, an intelligent man, worked it in a very satisfactory manner, and thought it a capital thing, but considered the fire surface too large. He left me to go in business, and with my new gardener began my troubles. The second time he fired up he boiled nearly all the water out of the pipes; and this he repeated three times in the course of a week, excusing himself by saying that the boiler was a bad one, and urging me to replace it with another. I knew the boiler had been a good one, and supposed it might be still. Having made myself familiar with its operation, I passed several evenings with my new man, teaching him how to work it, and now he thinks he "never saw such a fine boiler." This confirms what you say, that a man don't always know when he has a good boiler, because he don't know how to work it. Boilers are often taken out to make room for others no better, and sometimes not so good. Boilers are often too large or have too much fire surface, and then they give a good deal of trouble by boiling over. If there is pipe enough in a house, there are few boilers that won't keep it warm; still, some boilers are much better than others. I am content with mine. But I should like to see your suggestion for a trial of boilers carried out.

Respectfully yours,

AN AMATEUR.

[We shall do our best to have this matter put in a practical form, and bring out the "facts." Your "new man" is not the only one who has condemned a good boiler, simply from not understanding its management. There is undoubtedly a choice in boilers, and if we all keep cool, we shall one of these days know which is best.—ED.]

"MORE ABOUT BOILERS."—PETER B. MEAD, ESQ.—*Dear Sir*,—In my article last month read weighting the *valve* instead of valves. Now to your questions. Probability of blowing up? None. Amount of danger? None. How to avoid it? "First catch your hare." In regard to capacity? Can not say, the one I have in use being a small one for heating a forcing bed, and not a green-house; at a guess should say that, where a four-inch pipe is used, a one and a half or two inch would answer. In regard to detail, do not think there is any more to give; almost any machinist will get up one from the sketch.

A word of explanation of action may be necessary for those not familiar with such things. The apparatus being filled, (the regulating valve having been lifted to let out the air,) valve weighted at desired point, and fire started, the water expanding with the heat, the surplus amount is forced through the valve, and runs away, or into the feed tank, as shown, leaving the proper amount in to work at the pressure fixed upon. After this discharge, if more fire is made than is necessary to keep the water at that point, it runs over again, which must be stopped, either by increasing the pressure, or damping the fire, until you hold it at the desired temperature, just below the blowing-off—not "up"—point. It is least trouble, though, and saves water, to put on the full weight at once, and blaze away; damping the fire when your house gets too hot. Nervous individuals, however, who are frightened at the mention of a

hundred pounds' pressure, can regulate it to suit their pulse. When the fire is let down, or cleaned out, the pressure being taken off the check valve or feed pipe, the water in the feed tank runs in, and fills the machine up again. If the fire be kept up, so that the pressure on the check valve from the furnace is never less than that on it from the feed tank, (which, of course, depends upon the height at which it is placed, depth, etc.,) it is not necessary that a single drop of water go in or out after once fairly at work; but to insure a proper circulation at all temperatures, the cistern should be kept filled, so that the machine can fill itself when necessary.

In the event of steam being raised, which can only happen from the grossest negligence—firing up and not weighting the valve, and running the water out—no harm will arise; only the trouble of letting down the fire to get in the water. If *all* the water were out, and the thing red hot, it might not be pleasant for "my man" if he poured any in; though I am not certain that even in this case he would get his desert. Where water-works exist, all trouble of tending the cistern is removed, by attaching the feed pipe to them; the regulating valve must be kept weighted at a greater pressure than the head of water, or, in the event of the fire being let down, it will keep running through.

If any thing more is written on this subject, it had certainly better be, as you say, "divested of all personal considerations whatever." When I penned my last article, I had no idea that B. was writing up, or P. down, a particular make of furnace; I do not think I noticed whose Mr. Park's was. To suppose that *any* apparatus of the proper size will not warm a house is simply ridiculous; of course there is a choice of furnaces, or boilers; the most important point being, I should think, to have it large enough to hold fire for ten hours. Whether this or that one will evolve more heat with the same fuel can only be determined as you suggest, by working first one and then the other, in the same house, and making accurate thermometrical observations, out and inside; the variations of the force, and the direction of the wind, will prevent even such experiments from showing exactly correct results.

Mr. Chorlton no doubt hits the nail on the head, when he says Mr. Park's apparatus is too small, as by data given he evidently knows what he is talking about; this is re-"confirming the opinion I formed," (jumped at, having no experience in the matter,) which is all I meant to convey; that is, it is too small *sometimes*—in zero weather like last Sunday—and here lies the advantage I claim for the wrought-iron, high-pressure apparatus: that it can, when necessary, be forced to do double or treble the ordinary required duty.

The error at Mr. Park's probably arose through miscalculations on the part of the makers, or mistaken economy on the part of the purchaser. I would remark, *en passant*, that he loses considerable heat by carrying his smoke pipe directly away outside.

I think Mr. Chorlton and others are behind the age in the affection they exhibit for cast iron—it is becoming considered a very mean material, only fit to be used where ballast is required.

Jan. 21, 1861. BROOKLYN.

[We concede "the hare" to you, but can not consent to let you reduce the bore of your four-inch pipe to any other whatever; that would be a great mistake. Our object was to give you a chance to say something bearing on the prevalent prejudice against high-pressure "machines" of all kinds. Though you do not think there are any more details to give, you have notwithstanding furnished just the details our readers want, and for which we thank you. It would certainly be difficult to "blow up" your boiler, except, as you say, through gross carelessness. We shall take an early opportunity to see it in operation.—ED.]

BROOKLYN, Jan. 21, 1861.

Mr. Editor.—Dear Sir,—When a man is set upon by a crowd, it's but "a small request" that the on-lookers allow him room to defend himself, and as you and your readers have stood by and

seen me considerably cuffed, in fair return just give me room to swing my arms a bit, without any sly poking, till the odds are nearer even. First, let me deny having written formerly only to injure Wethered & Cherevoy, as your correspondents wish to aver. I might claim to be "a friend of truth and fair play," as well as some of them; and the article of B. of Brooklyn was a sufficient incentive to call out such, without any spiteful feelings in the matter. In that answer you will find nothing but the most simple and direct reply, and I leave it to you and your readers, if in that they can find any sufficient provocation for such a general assault. Had I wished to injure the "well-earned reputation" of W. & C., a very different view of the case might have been presented.

Now to Mr. Chorlton, my first assailant in your last number. At the earnest request of Mr. Wethered, in the summer of 1859, I consented to have two of my houses heated by his new boiler. He took the dimensions, calculated the requirements, and put up the apparatus accordingly. Not professing to be "*au fait*" on boilers, this being my first, I was not so foolish as to desire W. to put in less pipe than he thought necessary. The job was to be thoroughly done, and a written agreement was made "to heat the houses satisfactorily," which I think was not done. Now, Mr. Editor, you and your readers can judge whether I or Mr. Chorlton (who tries to prove that the amount of pipe was entirely inadequate to the buildings) most effectually injures W. & C. It is necessary now for a fair hearing that your readers get the facts of the case further. First, W. & C. put in a No. 4 boiler for me, which, after testing, they had taken out and replaced by a No. 5. This, when the pipes got hot, threw the water from the tank in such a sudden, heavy, and unbroken flood, as I never heard of any other boiler doing; and one night, after an absence of two hours, (having left the water above the flow pipe in the tank.) I looked in the tank and saw only, before the match went out, that the water was too low; and not suspecting that the boiler could be empty in so short a time, turned cold water in the tank; and soon after, going out to the boiler, found the water extinguishing the fire. W. & C. next day put a No. 4 boiler in place of that destroyed, (not having a No. 5 ready.) This was not expected to heat sufficiently, but it did so well that, rather than risk another tearing down in winter, I kept it till the next summer, and I have not been slow to say that it did much better than ever was expected of it in keeping the frost out. As to its boiling the water, it once caused the same alarming overflow at the tank, as the No. 5 had done, which I supposed was boiling; but on talking with a well-versed mechanic, he was of opinion that the water never had boiled throughout, that steam was generated in the boiler, which drove the water out of the pipes, *in consequence of the too great distance of the expansion tank from the boiler.*

My second assailant, Mr. Wightman, under the guise of friendship accuses me of writing for "the purpose of injuring" W. & C.; not a very friendly accusation, entirely uncalled for, and which I deny. He says I told him that W. & C.'s apparatus had given me "perfect satisfaction." Let me ask Mr. Wightman if I didn't tell him the history of my boilers, destruction, etc.; and how is it possible I could tell this with "perfect satisfaction" appended, to *a friend*, three weeks after the notorious destruction of my boiler? Wightman tells of ten boilers of W. & C.'s which give the greatest satisfaction. I only spoke of my own, which I am thankful for having had replaced by one of Hitching & Co.'s; and I believe I am not alone in this; and that, too, in more experienced hands, and where the boilers had competed on the same grounds.

B. of Brooklyn, instead of answering my charges in a manly way, and signing his name, as called on to do, neither admits nor denies that his former letter referred to my place, but seemingly wants to bemuddle the matter by proving both. Like some pettifogging lawyer, he dodges around to escape a straight shot, and with his own crooked gun (in true Irish fashion) tries to shoot me around the corners. I stand by my former letter, and deny that I found the pipes cold and the boiler red hot before turning cold water in the pipes. I never saw the boiler red hot, though B, with his far-reaching eyes and elongated ears, might; and though B. professes more knowledge than mine on boilers, I am of opinion that, with cold pipes and the boiler red hot, the pouring in

of cold water would at once have exploded the boiler, (which was not done,) and the last of B.'s gratuitous assertions. I have not argued against W. & C.'s *boiler* particularly; in my case it was probably the arrangement of the apparatus that was wrong more than the boiler itself; an important item not to be lightly overlooked in such matters. As your correspondents have praised W. & C.'s apparatus so highly, in justice to others let me state that, with a house and a half more, and three hundred feet additional pipe, my heating is now done *most satisfactorily* by one of Hitching & Co.'s new boilers, without half the trouble that W. & C.'s gave, and (at the risk of being called "close") with very little more coal than their No. 4 took to heat, very indifferently, three hundred feet less pipe.

I have no desire to trespass on your space further, Mr. Editor, and shall not return again to this subject.

Yours respectfully,

JAMES H. PARK.

[The explanations in Mr. Park's letter make this boiler matter quite clear to our apprehension, and we think no more is necessary to be said on the subject, so far as those interested in the use of boilers are concerned. It is manifest to us, that in this particular case the *boiler* itself is neither to be blamed nor praised. Mr. Park very candidly admits his want of experience in the use of boilers at the time; and though he undoubtedly committed an error of management, it ought not, while there was any water in his *return* pipe, to have been productive of any result more disagreeable than filling his house with steam; provided every thing else was right, which clearly was not the case. We can readily perceive wherein this heating apparatus failed to give satisfaction, and could demonstrate it to the satisfaction of both parties. The whole subject may be summed up and dismissed, so far as our readers are concerned, as follows: Mr. Park erred in management, but still had just cause of complaint, not against the boiler, but against the arrangement of the apparatus, if the parties were not restricted as to the size of boiler or length of pipe. One erred in management and the other in judgment. It is one of those cases in which there is a little error on both sides: a little concession, a little explanation calmly made, would settle this matter on a just basis, and preserve the "union" in our parish: we mean such concessions as are consistent with the obligations of right and truth.—ED.]

FRUIT GROWERS' SOCIETY OF WESTERN NEW YORK.—This Society held its annual meeting in Rochester on the 9th and 10th of January. The attendance was large, and the proceedings of much interest. The display of winter fruit is said to have been very fine. The president, Col. Hodge, not being able to be present on account of illness, his address was read by Secretary Bissell. For the proceedings which follow we are indebted to the kindness of a friend, to whom we return our cordial thanks.

After reading the President's Address, the following officers were elected for the ensuing year:

President—E. MOODY, of Lockport. *Vice Presidents*—J. J. Thomas, Union Springs; W. Brown Smith, Syracuse; Prof. W. R. Coppock, Buffalo. *Secretary*—C. P. Bissell, Rochester. *Treasurer*—W. P. Townsend, Lockport. *Executive Committee*—P. Barry, Rochester; J. J. Thomas, Union Springs; C. L Hoag, Lockport; W. B. Smith, Syracuse; Joseph Frost, Rochester.

The report of the Committee on Fruit will be found elsewhere.

The Committee on Subjects for Discussion reported the following:

1. The best method of gathering, packing, and transporting pears to market.
2. The best method of preserving fruits, so as in every way to prolong the period of consumption.
3. Can the yellows in the peach be introduced by the importation of trees from infected districts?
4. Which is the best stock for the cherry, for general purposes, the Mazzard or the Mahaleb?
5. The Northern Spy apple; what is the value of it as an orchard fruit?

6. Is it advisable to plant, in Western New York, the White Doyenné pear for orchard purposes, in view of its present liability to crack and spot in certain localities?

7. What is to be understood by the term "a standard," and what by the term "a dwarf tree?"

8. What influence has the stock upon the graft in modifying or changing the quality of the fruit?

9. In transplanting trees, is pruning the tops and roots of importance, and if so, under what circumstances?

These subjects were taken up and discussed in the order named.

Subject 1. The best method of gathering, packing, and transporting pears to market.

Dr. SPENCE, of Yates County, thought the best way was simply to barrel them; when pretty full, shake the barrel gently, and frequently shake gently as you fill, so that the pears match one with another, and the whole get pretty well consolidated; and when full, use pressure in forcing down the head. It is necessary to use care in gathering, so as not to bruise in picking; the barrels should be packed in the orchard, near the trees. In transporting to the railway, or to the market, all jarring should be avoided. There is no secret as to keeping pears, other than the keeping them in a cool room. Pears, and grapes, too, would perhaps keep better by drying them a while in a well-ventilated room before putting into a tight vessel; but there is no difficulty in keeping even our Bartlett pears.

Dr. SYLVESTER, of Wayne County, said—Have them fully matured, and gather before severe frost. Handle carefully, and place in a dry room. They are allowed to sweat for a week or more, and then should again be carefully selected over, assorted, and packed in half barrels made for the purpose. It is better to arrange them carefully in packing, and to shake down often; put a few at a time into the half barrel, and then jar gently, and then add. Pack your half barrels full, and keep until very near the point of ripeness before sending to market. They should be in such a condition that by a week's ripening in the city they are ready for market. In assorting pears, it is best to make about three classes of the fruit—best, medium, and poorer. By this method the first and second classes will bring as much or more than the whole of the fruit would have done if packed promiscuously.

L. B. LANGWORTHY, of Monroe County, thought that Osband's Summer pear needed picking as soon as the seeds colored, and that this was a test of the fitness of most for gathering. Some members coincided, while W. B. Smith, and Charles Downing, of Newburgh, differed. Mr. Downing mentioned varieties which did not blacken their seeds.

P. BARRY, of Monroe County, said—Summer pears are generally gathered while the seeds are quite soft and green; and that, in a great many pears which are well ripened in the house, the seeds were found not colored at all when the fruit was eaten. In summer pears the seeds are no criterion by which to judge. Winter pears should be left upon the tree as long as it retains its foliage; but after the leaves fall the fruit deteriorates in quality. The time for gathering winter pears is, in Rochester, about the middle of October of each year; say from 15th to 20th of October. Pears should always be gathered very carefully by hand, and it is often not best to pick all the fruit from the same tree at the same time. They should be immediately assorted, and the poorer qualities separated from the best; then put carefully into boxes, which should stand in a cool, airy place in the north part of the building, and be kept as cold as they can be at that season of the year. When frost comes, put them into some place like a barn floor, where you can cover them with leaves until the more severe weather comes; at which time they should be put into the cellar of some building in which there is no fire. The great point or object is to keep them as cool and dry as possible, and yet not let them freeze. Care in assorting is of great consequence; as in the market value, as well as in the keeping, a great deal depends upon the manner of assorting the fruit. As to the time of sending to market, opinions differ. For the present, pears must be marketed in the fall, and as soon as plenty of good pears are raised, there will be plenty of fruiterers to buy them; fruiterers who will know how to keep

them into winter, and how to ripen up and mature them as the market needs the supply. As to the need of a warm room to ripen them up, if good specimens are well matured upon the tree they will ripen up perfectly well in a cool cellar, and can be brought from the cellar in a splendid condition for the table. The gathering and packing of autumn pears is a very important matter; for, from some cause, many perish on the way to market. Gather early and assort carefully, because none but good, hard, clean-skinned pears ought to be boxed; poor pears infect the others. When packed, send to market by the quickest conveyance. Either peach baskets or small boxes are better than barrels, because in barrels they are very apt to heat, sweat, ferment, and decay. The smaller the quantity the less the tendency to sweat and decay. There is also a kind of fungus or black spot upon some fruit, which should especially be thrown out, for it is contagious. It spreads more rapidly when the barrel is warm, and communicates a bitter taste all over the fruits in the same package.

H. E. HOOKER, of Monroe County, thought good sound half barrels, with holes bored at the ends, none too large to ship pears in. Agreed with Mr. Barry as to the picking and keeping cool, but did not cover with leaves on the barn floor; it was for too short a time. Last fall he put the Glout Mourceau into barrels, and after sweating for a week, put them at once into a cool cellar, and is using them now in fine order. Don't think there is any more trouble in ripening winter pears than winter apples. Pears should be sent to New York in the fall, while they are hard, and in the very same manner as winter apples. It is important that they should not be heated, nor the sun shine upon them when first gathered. Great care should be taken, when first picked, to keep them just as cool as you can. As to putting at once into the cellar, would not put the pears into any cellar when first picked. Every apple and pear should be kept in a cool, dry, airy place above ground until quite cold weather. It is a capital plan to place in heaps, if it can be done without injury to the fruit; for it is a great object to have a good deal of fruit together. The pears thus retain the fine aroma and the real excellence of the fruit.

L. BARBER, of Ontario County—Pears should be gathered upon a cool, cloudy day, or if upon a sunny day, should be picked in the morning or evening. Pears picked in the heat of the day, and at once barreled up, ripen the sooner for it. Pears sweat more than apples, and the packages in which they are kept should always be ventilated. Prefers barrels to boxes, and if possible, wraps each pear separately in paper. Barrels are not jammed as much in moving; they are rolled.

Mr. JACOBS is a dealer in fruit. Producers make quite an error in shipping their fruit in too large packages; and another error in not having fruit properly assorted. A few poor specimens give a bad impression, even if every other pear or apple be of the highest perfection. The best things to pack fruit in are barrels or half barrels, and crates are the worst things to pack and ship fruit in.

P. BARRY could not agree with the gentlemen who recommended barrels. In Europe they always pack their pears in small boxes for market, holding from half a peck to a peck, between layers of dry moss or leaves. In England or Paris you see no such thing as barrels for the transportation of fruits; they use parcels which can easily be lifted and properly laid down by the person transferring them from vehicle to vehicle.

Mr. MOODY differed from Mr. Hooker as to the putting into a cellar; thought that when first taken from the tree pears should be put into a cool, dry cellar, to avoid out of door changes of temperature.

Dr. SYLVESTER suggested that where possible the fruit packers have a room in a side hill, which preserves an equable temperature, and yet is dry and well ventilated.

Subject 2. The best method of preserving fruits, so as in every way to prolong the period of consumption.

Mr. SHARPE, of Niagara County, preserves fruit by canning. Some fruit now on exhibition by

him was kept in his cellar. As soon as he had perfected the method, would give it to the public. Here were Bartlett and other fall pears in good order to-day.

HUGH T. BROOKS, of Wyoming, thought this subject a very important one. People have got into the habit of thinking that they can not help losing a part of their fruit by decay. At least one third of all the apples put into our cellars become decayed and worthless, and this loss is a serious one. Now some cellars keep fruit very much better than others. It is important to know what constitutes a good fruit cellar. Is it dryness? or is it lowness of temperature? or is it evenness of temperature? or what are the controlling causes as to preserving fruit? There have been some who thought their garrets better than even a dry cellar for keeping fruit.

Mr. BISSELL, of Monroe County, agreed in thinking this subject a very important one, because of the advantages possessed by winter maturing fruits, and by fruits which can easily be kept into and during winter, and then eaten fresh, over preserved fruits, over sweetmeats, and over dried fruits. These well-kept fruits possess decided advantages: 1st. As regards the health of families. 2d. As respects the trouble of preserving or keeping. 3d. As regards the expense of the preserving, And last, not least, the pleasure of partaking of fresh fruits, when we can thus "prolong the period of consumption," is far greater than in consuming the cloying and indigestible sweetmeats. The season when sweetmeats and preserves begin to be relied upon by housekeepers commences about (or soon after) New Year's, and is prolonged until the strawberry season in June, and, at the very least, is over four months in extent. Now, first, as regards the health of families, this latter part of winter and the spring is the period, the very time, when the physical strength is taxed to the utmost, and when the digestive organs need assistance instead of additional burdens. Let persons, at this period, give tone to their stomachs by the judicious use of nutritious apples, beautiful pears, and luscious grapes, and the difference in doctors' bills will speedily become apparent. As to the trouble in preserving, the difference is quite apparent between the days and almost the weeks when the females of the family are paring, or stoning, or peeling the fruits, and are stewing and steaming, not only the sweetmeats, but themselves, over the kitchen stoves and furnaces; the difference, I say, is quite apparent between these and the comparatively slight trouble required for the quiet boxing or barreling of the grapes, and apples, and pears in the cool, dry cellars. The expense of the stewing, and the cooking, and the preserving, and the enormous consumption of sugar, is another item; but, as that is a matter of dollars merely, we will not complain TOO much of that; still, it is no inconsiderable item in the family expenses of many a townsman of ours. And now, when it comes to the pleasure of partaking, that question is settled incontrovertibly, and without debate, by the fact that we never see these cloying sweetmeats presented upon the table while fresh fruits are in season. When guests are offered strawberries and cream, they never express a preference for preserved quinces. This pleasure of partaking of fruits as nearly fresh as possible was more than proved by the burst of applause which hailed our esteemed fellow-member, Yeomans, when he introduced his method of bottling and keeping fruits in a comparatively fresh state, and without totally destroying their native flavor by sickening additions and cloying combinations. Next March or April any member would speedily decide as to this pleasure of partaking, if offered a couple of Easter Beurré pears, or a saucerful of stewed plums; if shown a fine King apple, or a dish of ever so nice Yankee "apple sass;" a bunch of luscious Diana grapes, such as I see upon the tables before us, or a plate of jelly of the choicest sort. As to this "prolonging the period of the consumption" of apples, pears, &c., their keeping qualities have been and are fully discussed and proclaimed; but, as to grapes, we have hardly yet begun to test this delightful fruit in this respect. In recommending a grape, we speak of its hardiness, of its productiveness, of its early ripening qualities, flavor, &c., but, as yet, very little of its keeping qualities. In my own case, the effort to keep varieties has thus far been rendered futile by constant requests to see our assortment, and to taste a few berries of each variety, and by the desire of each agent and salesman to carry with him the finest of the bunches remaining at the time of the gentleman's visit to our vineries. But, in the midst of all these disadvantages, the Diana has surpassed our most

sanguine expectations; and the specimens shown upon your tables by me to-day prove what this splendid fruit would do when kept in a suitable manner, and not in a dry, stove-heated room; not every day opened, exposed, and handled by visitors; because, even now, not a berry drops from the bunch, but all are fine, plump, and fresh as can be expected. It is a very great desideratum to have a grape that ripens early and ripens surely, and yet keeps, and keeps well. I hope that we shall hear the experience of members as to other sorts as well as Diana; as to Concord, for instance, in respect to its keeping and its carrying qualities; for at whatever dinner party or evening entertainment during February or March, there should be presented finely kept, fresh Concords, Dianas, Cuyahogas, or Delawares, we apprehend that not a single partaker of the luscious fruit but would express his decided preference for such dainty entertainment over either the domestic or foreign sweetmeats as commonly set forth at our parties—would express his preference, I say, by the enthusiastic use of General Taylor's oft-quoted words, "A little more *grape*, Captain Bragg."

Mr. SHARPE agreed with the gentleman in considering this subject an important one, and hoped that fall and winter fruits could in some way be kept until the season for fresh ripening again.

H. N. LANGWORTHY, of Monroe County, had in the fall taken Bartlett pears, and after soldering tight into tin canisters, had placed them in the ice-house, deep in the ice. At the time when all other pears were coloring and maturing to perfection, mine were in the same condition as when put in. They ripened up well afterward, coloring finely, and acquired the true Bartlett flavor.

W. P. TOWNSEND had tried wrapping up pears in paper and in woolen cloths, and putting in baskets under ice; but, upon exposure to the air, the fruit kept that way became discolored, and proved to have lost its flavor.

P. BARRY—Pears after maturity continue to improve steadily toward perfection; this ripening process may be checked, but not suspended; and if it remain suspended for any length of time, it can not be awakened. Hence the danger of placing long on ice. Fruit-rooms should always be above ground, and should (like houses) be built with double walls to preserve an even temperature. In fruit-rooms the great objects are coolness and dryness; the heat never above 40°, and the air dry. You can then allow the ripening process to go on very slowly, only just enough to preserve its vitality, and can considerably prolong the period of its consumption. In England they never keep their fruits in cellars.

Mr. TOWNSEND had upon three occasions tried the use of Schooley's preservatory upon Bartlett pears, and kept them some time beyond the usual period for ripening, but always destroyed the flavor of the fruit.

W. B. SMITH had kept early fruits in this way in an ice-house, and they looked well for a month or six weeks; but the taste was destroyed.

Dr. SPENCE differed from Mr. Barry as to the ripening being a vital process. Thinks it only a chemical process, and one which can be suspended for some time by a low temperature, and yet renewed and perfected.

L. B. LANGWORTHY—Cold is a preservative principle, antagonistic to decay. Witness the frozen animals in Siberia. Fish, in the winter, become dormant in ice, and when put into water will again live. Agreed with Dr. Spence that the changes in the apple (and other fruit) are chemical, and that no principle except cold will preserve them without change. Apples will bear several degrees below freezing point without freezing the juices, and when brought out and exposed to the proper influences will ripen up well. Mr. L. referred to Mr. Bissell's suggestions as to the keeping qualities of grapes, and the best method of keeping. Prefers something like the peach basket, in which he packs them in layers, with paper between each layer, using great care that no broken or imperfect grapes are left upon any branches. Keeps grapes easily until May by keeping the baskets in a cool room as long as they can be without freezing, and then transferring to a dry cellar.

Dr. P. G. TOBEY, of Monroe County, exhibited some very fine grapes. Was accustomed to pick his Diana grapes about the first of November, and upon a warm, dry day if possible; puts into paper boxes about eight inches wide, twelve inches long, and three or four high, holding about five pounds to the box. Carried these boxes same day into a dry cellar with windows open. Had kept grapes for three years past with complete success until April. Grapes need an even temperature, and as low as possible, without danger of freezing.

Dr. SYLVESTER—Grapes should be fully ripe when picked, and all bruised or imperfect berries be removed from every bunch. If packed immediately and carefully, they will remain plump, and not shrivel at all. Best to pick on a dry day, and after removing all imperfect or bruised berries, pack in shallow boxes of wood or paper—not more than two layers in each box. Keep in a dry room, with as little variation in temperature as possible, until there is danger of freezing, and then put in cellar. Some of my neighbors keep their grapes very finely in stone jars, and preserve successfully as to plumpness and flavor of berry. If two layers of bunches are ever put into the same receptacle, we must put white paper between them—soft, unsized is best.

H. N. LANGWORTHY—Grapes should be picked as soon as ripe in order to keep well. The greener the stem of the bunch, the longer that bunch can be kept. A bunch with an unshriveled green stem never rots. Packs in peach baskets in turner's chips, in layers, with sugar maple chips between, and last year kept grapes with stems green until April. For sending to the New York market, should be put in single layers into paper boxes, and these boxes into cases. Has sent tons of them, and they all came out very fine. After picking, carry the grapes into a cool place at once, and keep the temperature as uniform as possible.

Mr. HOAG, of Niagara County, spoke of the importance of the uniform temperature, and of packing, so as not to bruise the grapes.

Mr. BARBER—We raise for market in our town more than thirty tons of grapes every year. Differed from Mr. Langworthy as to the green stems, because, unless dried, they are apt to mould. We always dry the stems, and pack in boxes of from six to twelve pounds, with two or three layers of grapes in the box, and fill the boxes full, so they won't shuffle about and "mash." If the fruit-grower uses light, well-ventilated rooms, it requires about two weeks to cure grapes for shipment to market. The fruit which is least thoroughly ripened when picked, shrivels the most. In boxes exposed to the air, grapes shrivel more than after being packed for market. Grapes are not injured while hanging on the vines by apparently severe frosts. Would pick as soon as the stems are ripe, pack in paper boxes, and put into larger wooden boxes, and they will be and remain plump when sent to market.

Mr. LA ROWE, of Steuben County, spoke of Mr. McKay, of Bloomfield, packing his grapes in barrels cut in two. Keeps them in these tubs until the stems shrivel; then assorts, and watches that there is no mildew. Keeps them thus about four weeks; then puts into paper boxes, and sends to market. It is important never to allow vines to overbear, and thus you have compact bunches of large and showy berries. To put up in paper boxes of about five pounds each, is the best way to keep grapes after the sweating process is through with. As to this process, *grapes always sweat*, and therefore the surer way is to cure well before putting into the paper boxes, or any other boxes for keeping.

To be continued.

THE BERGEN PEAR

for THE HORTICULTURIST

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